# CQ-TV

No. 158 MAY 1992

## CONVENTION 92

## HARLAXTON MANOR

**BRITISH AMATEUR TELEVISION CLUB**

**MIKE BARLOW circa 1956**

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**CLOSE FOR PRESS FOR THE NEXT ISSUE ..... 20th JUNE 1992**


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# POSTBAG

## THE SSTV DEBATE

Dear Mike,

There has been a lot of discussion through CQ-TV pages about SSTV standards - which one to adopt? - what method to use? - how many lines per second? Well, why not choose the standard that was first devised?

In 1958 Copthorne MacDonald devised Slow Scan TV as a means of sending visual information with an SSB bandwidth and in a form that was easily resolved using 'cheap surplus components'. The standard adopted was (for the UK) 8 seconds approximately, to be resolved on the ex-Radar long-persistence CRTs, 5FP7 etc. The persistence of these tubes is 10 seconds. The line frequency of 16 and 2/3 per second was chosen as a rate that could be locked to the mains (i.e: 50Hz/3).

To adopt any other standard would, in my opinion, deviate from the original idea. For example, to have a frame read-out of say 96 seconds can only be for an increase in resolution. Surely, if a high-resolution at such a slow speed is required, then why not use facsimile? To send hi-res graphics via a home micro a modem could be employed - no need for SSTV. Colour is probably impressive, but not essential. If moving pictures are required then opt for SSTV.

Admittedly, long-persistence CRTs are now difficult to get hold of, so an economy scan-converter can be built (see The Slow Scan Companion). As far as producing pictures is concerned, a sampling camera could be put into operation by fairly straight-forward modifications to an existing fast scan camera, or a fast scan to slow scan converter built.

It seems that commercial builders of SSTV equipment are deciding the standards. I am not standing in the path of progress, but let us not forget the original idea of SSTV. There are many mods and improvements that can be made to the original. Although the scan converter is an improvement to the 5FP7, it does NOT mean a replacement.

In the words of Johnny Brown G3LPB 'It's like Aero chocolate, different, but still chocolate'. Cop. MacDonald, what do you think?.

73 ... Eric Edwards GW8LJJ.

## SSTV FOR THE SWL

Dear Mike,

Information is just to hand of some new equipment which might be of interest to readers of CQ-TV.

Of all the enquiries made about SSTV the perennial question asked is 'I have a good communications receiver, how can I receive colour pictures in all the modes I hear on the air?'.

To do this until now has required either a modified Robot 1200C, or a computer with some expensive software, the latter being restricted to B&W and simple colour in the lesser used modes. To fill this gap an enterprising German amateur has produced a Short-Wave Listener Colour Slow-Scan Television Converter.

This device is fed the incoming SSTV audio from the receiver, hooked up to a suitable colour monitor, when it can be set to resolve all the modes and speeds presently heard on the air.

For good measure FAX is included capable of receiving weather satellite stations, press and amateur transmissions.

The report I have had from HB9ANT, who is using the converter in parallel with a Robot 1200C, is one of unbounded enthusiasm. The quality, he claims, is superb, and when compared side-by-side is indistinguishable or better than the Robot 1200C. Clearly this equipment will greatly extend the facilities available to SW listeners, filling what has been up to now an unresolvable reception gap. The converter is reasonably priced at DM695 (approximately £250 at Jan 1st) and enquiries should be made to DK7BO the supplier at: Hr.Warner Stratmann, Middlereeg 22, D-2933, Jade 1, Germany.

73 ... R.W.J.Humphries G4UKL

## GB3LO

Dear Mike,

Just a brief update concerning GB3LO, the Lowestoft ATV repeater. The repeater has been operational with low power since December 1991, with 1 Watt into a Bow-tie aerial at 88 metres ASL.

When not in repeater mode a series of test patterns, including a BATC handbook testcard, and a Teletext style information page are radiated. In addition, a call-sign page with CW ident is transmitted at regular intervals.

The initial low-power coverage of the repeater seems good, I have from my QTH (which is less than 1k from the repeater) via GB3LO worked Andy G8VLL in Norwich; Andy's QTH is about 35k from the box. Also, I have had signal reports from Dick G4RRX also in Norwich.

Thus, when funds permit the purchase of a Mitsubishi 'brick' for the PA stage, excellent coverage is expected.

Any reports and/or donations to Allan G4KDL, Treasurer Lowestoft & Great Yarmouth Repeater Management Group, c/o RA Electronics, 133 London Road South, Lowestoft, Suffolk.

73 ... Paul Godfrey G8JBD

## NOVICE ATV

Dear Mike,

Firstly, thanks for your efforts re myself and Kelly Communications, I am still waiting for the aerials, but at least I got a phone call from them.

My son Neville 2E1ACS has applied for membership of the BATC and he asks if you can make it known that he is regularly active on GB3ET and during contests.

Could you also inform members that novices do not have 2M, hence no talk back on 144.750, so he is always listens on intercarrier sound and 433.450 when operating on 24cm.

During a lift he received P4 from PE1LRS and P2 from PE1DWQ, but unfortunately they did not receive his pictures. However, he did work PE1DWQ on 70cm phone, which we think may be a first 2E1 to PE on 70cm.

GB3ET is working well, many stations are now active. Richard G4YTV receives the repeater at P4 in Hull, some 70+ miles away, and Frank GI4OS at a P4 also around 70+ miles away.

I am at present soak testing the new logic built by Trevor G8CJS, which will soon be fitted at the Emley Tower.

73 ... Ken Roberts

## I HAVE RETURNED!

Dear Mike,

Just a line or two to put in the magazine. I have just rejoined the BATC again after a few years away from ATV. Since moving to Chatteris I have had to pack up ATV on 70cm. I went over to SSTV using a Wraase SC-1 and I am still active on slow scan. Just lately, I have become active again on 24cm and by the time this letter is in print I will be fully up and running on 24cm ATV.

So, I look forward to working some of my old friends that I used to work on 70cm?!

73 ... Andy Dunham G6OHM

## MORE SSTV DEBATE

Dear OM,

Thank you for your very useful idea you described in CQ-TV 156 (A new SSTV Standard). Some parts are already working in some SSTV gear (Synchronous mode: 'Amiga-SSTV' by Volker Wertich, Germany; 'AVT' by AEA, USA) and the 30, 60 and 120 second timing is realised in V.Wraase's new 'SC-2' converter. Maybe it pushes some people to think about the matter, so I translated your article for the German 'TV-Amateur' magazine by AGAF in Dortmund.

The only disadvantage I see is the reduction of colour quality in comparison to true R-G-B modes that I prefer for my Red-Green-3D experiments. Those stereo pictures need the highest possible resolution in both red and green (left and right) images to get an impressing space with 3D glasses on.

A modification I would like to suggest is the possibility to join the Red and Blue sequence to one Red line of the same length as the Green one (pure hardware option/ program option, no change for the B&W viewers, if VIS encoded as colour transmission). This 3D option could be announced by the operator to prevent irritations.

A useful addition to FAX/SSTV programs is the opportunity to send an announcement text (call and mode) automatically after the picture transmission, as integrated in the 'AVT' program for the Amiga.

It is very much needed to talk about the modes on the frequencies where they are used, for many OM only hear RTTY-like sounds when it is SSTV, and tune or call 'CQ' over it. Who ever reads bandplans?

73 ... Klaus Kramer DL4KCK

## THANKS!

Dear Mike,

Since being introduced to ATV I have found it a very interesting and compelling variation of the hobby, even though at the time of writing I am still RX only. Not only are the actual QSOs interesting, but also the amount of building that is required.

Since coming into ATV at the persuasion of Geoff G4CHN I have built in excess of 40 PCBs and Vero projects. This may not sound many, but I have only been ATV oriented since the beginning of 1991, and I am getting quite good at etching my own boards.

I purchased one of the character generator boards at the show at Harlaxton as well as signing up for two years. I found the board easy to construct and well made, and managed to get it going without too much trouble, after going over to Chairman Trevor's G8CJS to get the EPROM.

I find the magazine terrific and enjoyed the rally, a definite date for this year. Anyway, this might all sound rather boring but I thought I would let you know that all the work you and the rest of the editorial staff do is appreciated.

Best Wishes ... J.Grantham G8XVL

*Many thanks for your kind wishes John, however, I must straighten you out on one point - I AM the editorial staff - there is only me!! ... Mike.*

## AMSTRAD SSTV?

Dear Mike,

Please could you put plea for help for me in the next issue of CQ-TV. My main interest, on HF, is SSTV and I currently use a Spectrum computer and G1FTUs programme. I would like to upgrade to a system having better definition and would like to use my Amstrad PC1512. Can anyone help with information on an SSTV system (TX and RX) for an IBM compatible PC? I presume it will require an interface card as well as the software. Perhaps if you mention this in the magazine I may discover a fellow enthusiast. If only I could receive GB3ZZ!!!

Having got that off my chest I would like to thank you and the team of stalwarts who run the BATC for the great job you are all doing. Since joining the BATC and obtaining various publications from yourselves my understanding and enjoyment of SSTV has increased a million times.

One of these fine days I plan to build a camera and then the I2C project, as funds permit. You never know, I may even get into Fast Scan ATV, but so far as I can determine there is little activity in this area ( Suffolk/Essex border).

Once again Mike, many thanks for all the work you put into CQ-TV, I think the format, style and content is very professional - the use of Gloss Art paper for the cover is very effective. I look forward to the colour editions!!!

73 ... Nigel Heasman, 15 Brooklands Road, Brantham, Manningtree, Essex, CO11 1RN.

## CHEAP SQUARIALS!

Dear Mike,

Just in case it's not happening up your way, I felt I must tell you that 'BSB SQUARIALS' and receivers have appeared down here in Kent for around £50 complete, in the local shops and 'grot' markets. Bulls' of Hove has also got them.

Now here surely is a way for our constructors to get in at a give-away price for super-high frequency components - with )hopefully0 some articles from your experienced staff (!!!! - what staff?) on modifying these to work on ATV etc.

The Squarials themselves must be a work-of-art, and I've always wanted to see inside one of them, and at these prices it has become possible. Their local oscillator is at 10.769GHz, so a bit higher still for us.

The RX units are the same IF as Astra, and of course they are cheap because the BSB channels (same as Astra) are terminating at the end of this year, although I don't think they tell you that at the markets!

Yours ... H.J.Andrews G7CDT, Ramsgate

*Many thanks for the info, I am sure that someone will be getting to grips with the insides of one soon and letting me know ... Mike.*

## WHAT A LIFT !!

Dear Mike,

The weekend of January 30th and 31st produced spectacular lift conditions, mainly on 24cm. The only 24cm ATV repeater I normally see from my location is GB3RT (Coventry), but with this lift I saw for the first time: GB3TV (P5)(Dunstable Downs), GB3UD (P4) (Stoke-on-Trent) and GB3NV (P4) (Nottingham).

The highlight of the opening was a direct 24cm contact with DC0DO in JO31 square, with Coventry stations G1IJT, G0HOV, G6WLM and myself taking part. John (G1IJT) had the best report with P5 both ways. As DC0DO could speak no English, it fell to me to initiate thew contacts and QSP both ways using partially remembered remnants of tourist/schoolboy German, which gave rise to much hilarity and banter. Well I tried - with some success!!

A truly memorable weekend for the GB3RT Group.

73 ... Len G8ONX

## MORE BANDS IN EIRE

Dear Mike,

I am writing to advise you of some recent and very positive developments for FSTV in Ireland. Following recent meetings between the IRTS and our Department of Communications, the Department has agreed to release the following bands to FSTV operation:

434 to 440 MHz (previous trial allocation)
1240 to 1300 MHz
5650 to 5850 MHz
10 to 10.5 GHz

I addition, our power restriction has been lifted on all bands and is now 20dBW. FM video modulation is approved for use on the 1240MHz allocation and above, with the obvious stipulation that transmissions do not exceed the allocated bandwidth. Portable operation is now also allowed, but only on the newly allocated bands, the present restriction of licenced address only continues to apply for the 70cm band.

Please pass on this information to CQ-TV and allow me this opportunity to thank the BATC committee for their help in responding to the 'interference' problem we encountered some months ago.

Finally, you might advise members that the AGM of the IRTS is taking place in the Royal Hoey Hotel, Athlone on the weekend of 11th and 12th of April. We hope to have a demonstration FSTV station in operation and any visitors would be more than welcome.

Regards ... Craig Robinson EI3FW
IRTS FSTV Committee

# NEWS ROUNDUP

## BATC BBS CHANGE

Please note that as from March 1st last the BATC telephone BBS changed its telephone number to:

**0767 317521**

Also, the telephone answering machine help line has been discontinued due to lack of use, thus the telephone BBS is now operational 24 hours a day.

## TIME ON YOUR HANDS?

Volunteers are needed in many parts of the country to repair the RNIB's Talking Books for the Blind. No, don't skip this item - read on.

These talking books are simple cassette players and are a lifeline to 70,000 blind readers throughout the country. From time to time, these players go out of adjustment and need simple repairs: simple to you but not to a blind person.

The work is occasional and seldom amounts to more than a couple of evenings in a week. You need basic electronic skills and circuit diagrams and full technical details are provided.

If you would be prepared to do this rewarding task, please ring David Finlay-Maxwell on 0484-450982 (work) or 0484-604546 (home). Or write for info to him at D.F. Maxwell & Co., Prospect House, Huddersfield, Yorks., HD1 2NU.

# EDITORIAL

### Mike Wooding G6IQM

I would like to thank, on behalf of the committee, all those of you who took time out to fill out and return the questionnaire included with the membership renewal letter just before Christmas. To those of you whose membership was not up for renewal then, no you have not mislaid anything, you did not receive one!

The questionnaire was essentially concerned with CQ-TV and what comments you would like to make concerning your magazine. We have carefully sifted through the returns and I would like to address some of the comments made here.

A point raised by several members, and one that I have been asked before concerns the reprints from other magazines that are published in CQ-TV. There are three reasons why I choose to reprint articles, which are:

1) the article is particularly pertinent to ATV;

2) the article originally appeared in a lesser known magazine;

3) owing to a specific request from a member.

Now I realise that in the case of some articles some of you will have seen the original beforehand. However, please do not forget that not all of our members take, or get the chance to see, other magazines, particularly our overseas membership. I try to make a balanced judgement when I use reprinted articles, as to the interest of the majority of our members on the one hand and to the value of using a reprint on the other. If I get it wrong then I apologise.

There is another reason why I may choose to use a reprint article, that is LACK OF MATERIAL! I have to say that almost all of the members who complained this point have NEVER contributed anything to CQ-TV. Do not forget, CQ-TV is your magazine, if you do not send me articles, etc. to publish in it then it virtually ceases to exist.

Without members contributions the only way it can exist is either by the stalwart few regular contributors working overtime, by my using more borrowed material, or by reducing the page count to that of a mere pamphlet. The choice is entirely in YOUR hands.

Another point raised by a few members was concerned with confusion about the 'close for press date' shown on the 'contents' page of each issue and on the leading page of 'Market Place'. The confusion arises when members send articles in for inclusion in the magazine that land on the editorial desk close to or on the closing date, but are not included in that issue of the magazine.

The reasons for this are actually twofold. Firstly, what I actually mean by the published closing date is the last date that I will accept advertisements or items for the 'Postbag' or 'News' pages. Any articles that I intend to use for a particular magazine should be sent to me to reach me at least three weeks before the published closing date. Why? I hear you ask. The answer is simple, I already devote a minimum of some 25 to 30 hours a week to the production of CQ-TV, and to have to go through the entire production process of an article at short notice is not possible.

The second reason why an article may not be included in a particular issue is quite simply, that I may wish to target it for a particular issue, or that a similar article is already in that issue. It must be remembered that due to the lead time of CQ-TV, I am actually preparing the main content of the magazine two to three months ahead of its publication.

For example, this editorial is for issue 158, but I have already prepared and printed articles for 159 and 160. Unless an article is particularly topical, in that to leave it for the next issue would render it out of date, then I can not guarantee in which issue it will appear.

So please remember, the close for press date ONLY applies to items for 'Market Place', 'Postbag' or the 'News' sections. Articles sent for publication appear as and when the editor decides, and not necessarily in the next issue of the magazine. To anyone who is not already aware the Club and CQ-TV is run and produced totally by unpaid committee members totally in their own SPARE time - there are no full time staff.

Another point often raised by members is why not produce CQ-TV more often and why not A4, like other professional magazines. To the first question my answers are simple, I do not have enough time or copy and it would cost the club somewhere in the region of an extra £6000 per year just to produce an extra two issues making it six a year - that is approximately an extra £3 per member.

Concerning the size and format of the magazine, this is entirely a matter of cost. To change from an A5 format to an A4 one would cost in the region of £1500 per issue, allowing for a reduced page count using the same amount of articles etc. It is just not cost effective, even if the consensus of opinion liked the idea - let me know your thoughts.

One final comment on a point that has been raised on odd occasions in the past, and was raised at least once on a returned questionnaire. Why does the club hold a large surplus of funds in its bank accounts. One answer could be that we have a Treasurer whose middle name is Scrooge (sorry Brian - couldn't resist it). Seriously though, the answer to that one is fairly complex, but to try and simplify the reasons they are as follows: should any person or persons take

the club to court for any reason whatever (injury from a club project using club supplied parts or circuit boards) then those actually taken to court are the Officers of the club, and maybe also the committee. Thus, there needs to be a money available to fund such a course of action without necessitating the Officer or committee member suffering personal financial loss.

A second reason for holding a cash float is sound financial business sense. The club has over the last twelve months or so invested around £1500 for equipment, to make the running of the club and the production of CQ-TV more streamlined and easier for those concerned. To be able to do this kind of thing we need to have cash available. Also, do not forget that we may show a healthy cash balance, but we still have a lot to pay for each year. Each issue of CQ-TV costs in the region of £3250 to produce and post to you, that is in the order of £13000 per year. We are also producing a new handbook and planning two others. To initially fund will cost the club in the order of up to £3000 each, which has to be paid up front of course.

The annual Convention, whilst it is essentially a self-financing venture, in that the trading tables, etc., cover the cost of the rally, again it has to be funded up front, and to hire any venue is not cheap!

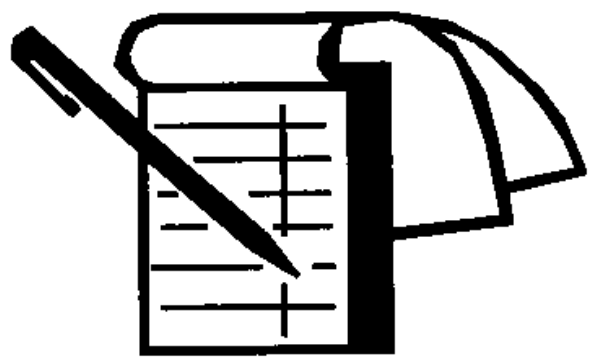
The club provides a printed circuit board and component service, we have to have the boards made and paid for, and we have to buy the components first before we can sell them to you.

So, if you want the club to be able to provide these resources, books, projects, services, etc. you cannot expect us to do so without a healthy cash reserve to back us up.

Finally, once again many thanks to all of you who took time out to return the questionnaire. Many of the comments concerning what you would like to see in CQ-TV I have noted and will do my best to help. However, if you have a specific request, as many of you have, for a particular circuit/project idea, a series on a specific topic, or whatever, please remember that I have to find a source of material for it. I cannot write it all myself, nor can the rest of the regular contributors. So, PLEASE send me your ideas, articles, circuits, projects, whatever. I can only produce what I get.

To send anything for publication in CQ-TV it is appreciated if it can be sent on a 3.5" or 5.25" disc as a plain ASCII file. I can read discs formatted PC, Atari, Apple Mac. and Amiga. Do not attempt to format an article in any way, as the first thing I do is rip out all formatting, printer commands, text commands, etc. There is no point in your printing out what you consider to be the finished article, as all the magazine master artwork is produced in the Desk Top Publishing package and printed out on our (new) Laser printer. Artwork, diagrams, etc., should be well drawn (I cannot afford a lot of time redrawing articles, and I will not use what I consider to be badly drawn ones as it reduces the quality of the magazine) and occupy a maximum size of 17.5cm by 24.5cm per A4 sheet.

I'm waiting! 73 ... Mike G6IQM.



# CONVENTION 92

As you now all know, Harlaxton Manor is the venue for the 1992 Convention. The village of Harlaxton and the entrance to the Manor lie on the A607 Grantham to Melton Mowbray road. Signposts will be erected on the day. A map has also been reproduced on the following page.

A "Talk-in" will be provided by the Grantham Amateur Radio Society on 2M and probably 70cm as well.

Please note that the driveway up to the Manor is long, and littered with speed bumps. The Harlaxton staff will direct you to your parking space after you've parted with your entrance fee at the gatehouse, so please obey their instructions!

**OPENING TIME:** Doors open 10.00 AM. This also applies to those staying overnight on Saturday (unless you are a trader, or an exhibitor - or even (hint, hint) a volunteer helping to set up!). Quite apart from some of the best bargains going before the doors open, the traders object to having people under their feet as they set up!

**ENTRANCE CHARGE:** Yes, 'fraid so, there will be an entrance fee of £1 per person. Children under fourteen years free.

Please note that there will also be a 'Conscience Box' for those staying overnight to pay!

**CAR BOOT TRADERS:** Please identify yourself at the entrance, whereupon you will be charged £5 for a car/small estate car, rising to £15 for a large van (or more, at the discretion of the gate person).

There will be pitches in the inner circle as well as outside the circle. First come - best pitch!

**TRADERS:** All traders **MUST** withdraw their vehicles from the rear of the Manor after unloading. This is a **COMPULSORY FIRE REGULATION.**

***PLEASE SUPPORT OUR INDOOR TRADERS & EXHIBITORS - THEY MAKE CONVENTIONS POSSIBLE***

**THE NIGHT BEFORE:** This year we have the bar to ourselves in the Manor (that doesn't mean its free!). A guided tour of the house by a member of the Harlaxton staff will take place at 8.00pm. Please note that this will be the only tour (it became too difficult to coordinate during the day last year). Cost is £2.00 per person, payable in advance by 27th April (Why not? just add it to your accommodation booking).

**VOLUNTEERS:** Last year it was very pleasing to see the number of people helping. If you can spare an hour on the day, could you please contact Paul Marshall on Lincoln (0522) 703348 before the event. We start the day at 6.00 AM !!

**ACCOMMODATION:** Once again the Manor is making its student accommodation available. The booking arrangements are slightly different this year.

All bookings must be paid for IN ADVANCE by 27th April. This is to smooth booking-in the day before - contact Paul Marshall on Lincoln (0522) 703348.

Prices are as follows:

Bed & Breakfast: £17.25 each per night
Bed, Breakfast and Evening Meal: £22.25 each per night

Single-roon supplement for a twin-bedded room: £5.00

Family rooms: children under 2 years - no charge, children under 14 years - half price

Prices are inclusive of VAT. All cheques payable to: HARLAXTON MANOR ENTERPRISES Ltd.

**CAMPING:** All bookings for this facility are to be through the CQ-TV editor, Mike Wooding on 0788 890365. A charge of £7.50 per night per pitch, no electricity.

**ON THE DAY:** All the usual attractions will be there and a Licensed Bar and Refreshments will be available all day

We look forward to seeing you on the day. Don't forget, if you can spare us an hour or so we can use your help ..... Paul Marchall

## HOW TO GET TO HARLAXTON

**TRAVELLING BY ROAD:**

Harlaxton Manor is situated off the A607 road, some 3 miles West of Grantham. The entrance drive is immediately opposite the "Gregory Arms" public house (see map below).

The main routes are as follows:

From the North or South ... A1 - turn off onto A607 and head towards Melton Mowbray.

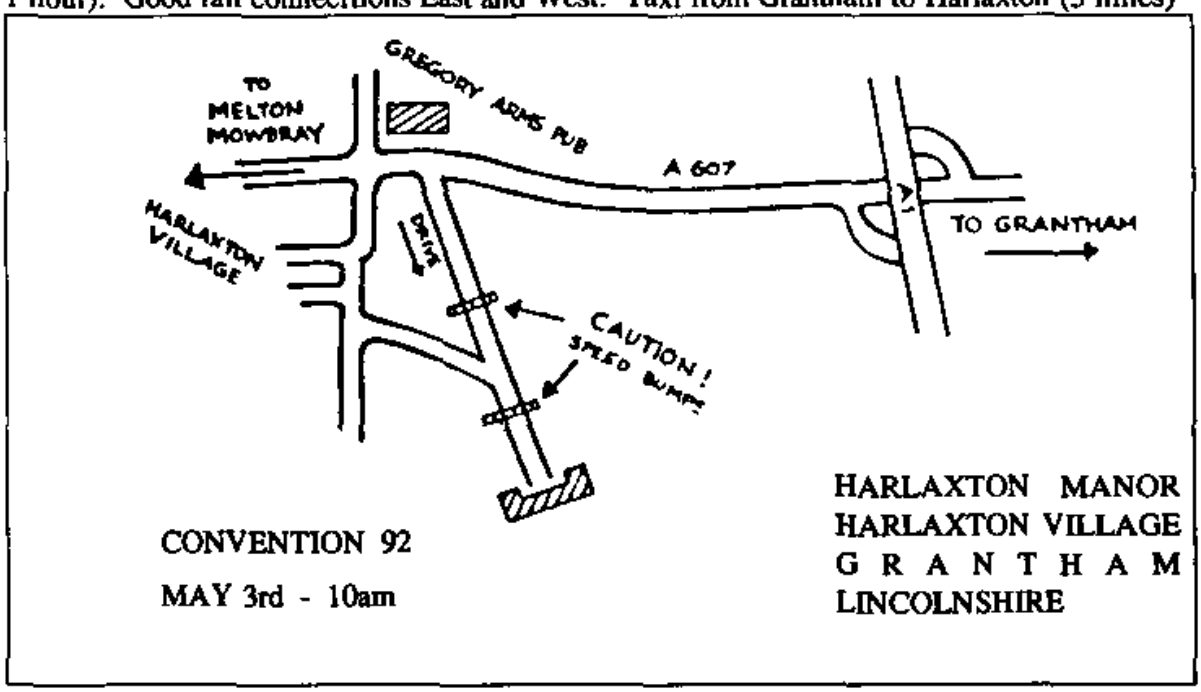
From the West ... A52 - join the A1 Southbound near Barrowby Village, then turn off onto the A607.

From the East ... A52 into Grantham, then take the A607 towards Melton Mowbray.

Please note: coaches and very large vehicles please follow the directions as above, and then into the Manor via the Tradesmens Drive (signposted HGV).

**TRAVELLING BY RAIL:**

To Grantham - main London/Edinburgh line (Kings Cross to Grantham takes approximately 1 hour). Good rail connecrtions East and West. Taxi from Grantham to Harlaxton (3 miles)



# THE BATC BIENNIAL GENERAL MEETING

## Notice is hereby given that the 1992 BATC Biennial General Meeting will be held at the BATC Convention, Harlaxton Manor in the afternoon of Sunday May 3rd in the Gold Room at 3.30 pm.

The agenda for the meeting is as follows:

1 Chairmans Address

2 Audited Accounts

3 Appointment of auditors for 1992 to 1994

4 Election of Committee :-

Mr Emmerson is standing down and seeking re-election.
Mr Lawrence is standing down and seeking re-election..
Mr Lawton is standing down and seeking re-election.
Mr Pawson is standing down and seeking re-election.
Mr Watson is standing down and seeking re-election.
Mr Humperies is standing down.
Mr Harding is standing down.
Mr Shipton is standing down.

If you would like to stand for election then please inform the BATC scretary (Paul Marshall) as soon as possible nominations from the floor will only be accepted if there is a short fall.

5 The Maximum Subsciptions limit is £15.
The Committee will not be seeking to raise this

6 Presentation of awards.

Directly after the General Meeting there will be an Open Meeting, where the members may question the Committee and Officers of the Club about any matter concerning the Club or its management and operations.

# THE F3YX ATV SYSTEM

*The following is a synopsis of a major 23cm construction project designed by Marc Chamley F3YX. The entire project, comprising a masthead preamplifier, a receiver preamplifier, a complete receiver with demodulated audio and video outputs, a transmitter and PA unit, will be published as part of the new BATC handbook, 'An Introduction to Amateur Television' to be launched at the Convention.*

*I wish to thank Marc for allowing the BATC to use this material, Andy Emmerson for providing this translated precis at very short notice, and hope that the following will whet your appetite with a construction project which represents some of the latest technology and state-of-the-art design techniques, resulting in a 24cm ATV station easily constructed by most amateurs ... Mike.*

**Marc Chamley F3YX**

## TRANSMISSION AND RECEPTION ON 24cm

In 1976 I described a set-up for FM amateur television on 1255MHz, which was never published in Radio REF - they thought it was too specialist! Many people got going with this scheme however.

All the same, for the last five years I have been working on updated designs using surface-mount components. These were not published until now because the components were not to be found in your corner shop, but now the explosion of surface-mount components in domestic hi-fi and video equipment has made them widely available.

The present design incorporates ten years of experience of several OMs in the Paris region and follows the following principles:

- its characteristics should allow DX contacts with the best possible sensitivity,
- it is better to lose definition and achieve a P2 picture than get a P0 with 8MHz pass-band (as in the case of using satellite receivers for ATV), on amateur contacts it is always better to trade quality for distance.

These basic criteria led to the following compromises:

- to transmit perfect FM television the minimum pass-band necessary is equal to twice the highest video frequency to be transmitted (using two sidebands),
- the receive pass-band should be as narrow as possible to conserve sensitivity,
- for colour video and 5.5MHz sound a minimum pass-band of 14.5MHz can be calculated,
- a loss of 6dB in the pass-band can be compensated by 8dB of pre-emphasis.

Numerous tests have shown this method to be superior to using satellite standards of pass-bands of 22 to 36MHz and 13dB pre-emphasis,

A picture improvement from P0 to P4 can be achieved with a 40dB preamplifier and substituting a satellite receiver with a 40MHz pass-band, with an ATV receiver with a 10MHz pass-band (-3dB figure).

This gives a spectacular improvement of up to 24dB by selecting these amateur standards, and one can only deplore those neighbouring countries where satellite stan-

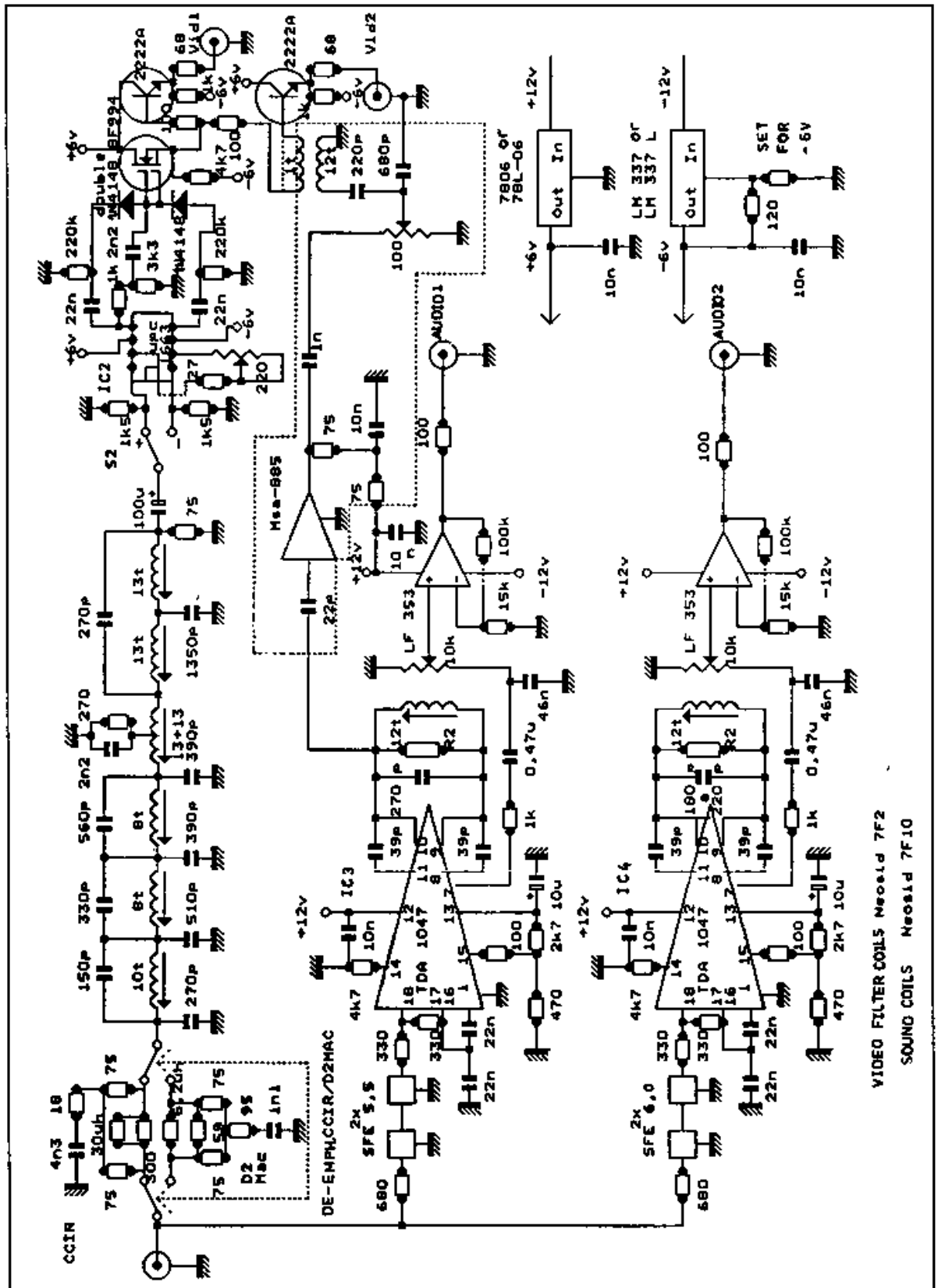



**Fig.1: Part of the F3YX 24cm Receiver**

dards have been adopted for ATV: these people are throwing away half their DX!

## 24cm RECEIVER

This project is a mixture of personal designs and commercial sub-assemblies designed for people who still remember how to use a soldering iron. The author concludes with some suggestions for people who do not wish to use any commercial assemblies.

The input preamplifier has a noise factor as low as possible, together with some selectivity, to avoid the intermodulation that comes from Radar, commercial television and close-by 2M and 70cm amateur transmissions. The extra loss caused by the interdigital filter is less than 0.3dB and the noise factor of the preamplifier is below 1.2dB.

The transistor used, an NEC64535, is bipolar; its noise figure is marginally worse than that of a GaAsFET, but the intermodulation performance is far better. By comparison, some commercial 1296MHz preamplifiers are very weak, with very wide pass-bands. This design has a pass-band of 25MHz centred on 1255MHz.

For the tuner I have designed a number of circuits using professional components, but I think these would cost too much for amateurs; the components alone would cost £500. So I suggest instead a Japanese Sharp tuner (type BSFA 77 G02) which can have its pass-band narrowed to 16MHz.

The complete tuner design has several advanced features. It is followed by a three-stage HF amplifier with adequate filtering and a screening can is essential. Video detection includes switchable de-emphasis and twin 1 volt, 75 ohm outputs, one of which is adapted for retransmission in another transmitter. The audio detector uses an IC which allows additional audio subcarriers to be used for stereo channels or high speed data (up to 19200 bits/sec).

## A NEW TRANSMITTER DESIGN FOR 24cm

The synthesised transmitter could have taken several design routes; there are so many possibilities. Nowadays we prefer to use an oscillator working on the output frequency, as this enables us to suppress all the sub-harmonics. The snag is that all the power amplification must be at 24cm. Discrete power transistors cost around £200 each, but fortunately some lower-cost hybrid modules by Mitsubishi are available.

For frequency synthesis a compact solution has been found using the Plessey SP5060 chip. A combination of various hybrid modules and an Anaren 3dB coupler allows an output power of 30 watts to be achieved. With portable or mobile operation from high points some exceptional contact can be achieved with this apparatus.

*OK, so now having whetted your appetite with this resume of the F3YX ATV system don't forget to get your copy of the new BATC book 'The Introduction to Amateur Television' being launched at the Convention, which contains the whole construction project in full.*

*Don't be put off by the title of the book, as it contains not only all you need to know about television to operate an amateur station, but also contains lots of new circuits and projects to complement not only a new station, but existing ones as well ... Mike*

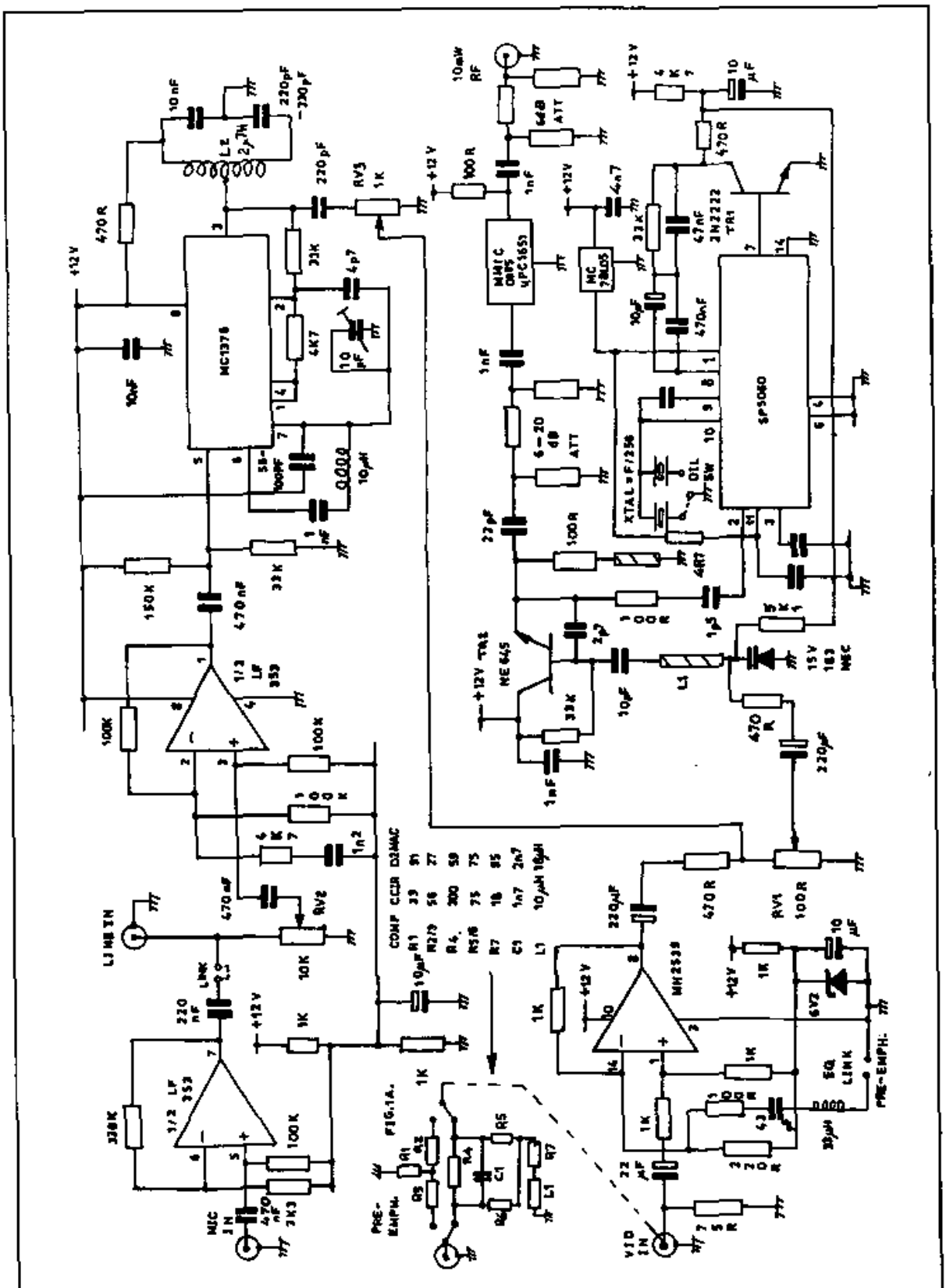


**Fig.2: Part of the F3YX 24cm ATV Transmitter**

# WHAT'S WRONG WITH ATV?

**Andy Emmerson G8PTH**

People always tell me discretion is the better part of valour, but I am afraid I have never been able to hold my tongue when I thought something ought to be said.

For this reason I am taking this opportunity to express my concern about the way our ATV hobby is going. As it happens, these concerns are not mine alone and have been expressed very graphically by two other hams. I challenge you to disagree with me and put up a more convincing argument.

We all know that amateur radio is getting old, so old that in the States the highest proportion of hams are around or past retirement age. Amateur radio is not attracting young people as it used to.

With ATV the situation is just as bad. Look at our own BATC committee - the same old people, year in, year out. Everyone on that committee is dedicated but... we're not getting any younger. Some of us no longer even have the time to go on the air, which makes me wonder how representative we can be.

Is there really no-one younger and more in touch who would like to help make the decisions which keeps our club and activity mode going?

Why is it when with the technically most developed and most demanding of all the amateur radio modes, we have a struggle to attract new members? People used to blame the cost of the equipment, but now you can hardly give away used video gear. There were plenty of TV transmitters under £100 at Harlaxton last year, too.

But those are just my thoughts. Now listen to Bill WA6ITF writing to Henry KB9FO, editor of the American magazine "ATV Quarterly". I think he sums up the problem most succinctly.

"Long ago, back when I was still a W2, I had a short-lived interest in ATV. I built a station out of some old RCA land mobile gear, home-brewed a converter and put 46 elements on my seven-storey apartment house. Then I spent three glorious weeks being bored totally stiff! After seeing "Paul's Dog" for the 44th time and "Mike's slides of Borneo" for the 70th time, I disconnected it all and packed it away in WA2INM's basement, where it probably sits rusting and rotting to this day.

"Even here in "Hollyweird" it's not all that different. Here we sit in the film and TV capital of the world, and with the exception of the hams covering the Rose Parade and a few yachting regattas, the content of programming has not gotten much better than the days of Borneo color slides in blazing black and white. Listening to KV4** rant and rave on 14.313 is a lot more interesting than anything that ATV has to offer - and I'm no fan of KV4**! (callsign disguised for legal reasons).

"If ATV is ever to succeed and become even one tenth as popular as FM or SSB, then it has to offer something more than Fred and Joe sitting in their shorts, drinking a Coor's and looking at one another. With the relatively low cost of good quality home video gear and a lot of imagination, the programming content of ATV could become something that would make people want to stay in ATV - not just pass through it.

"There are two sides to television, the technical and the creative. Currently the vast majority of ATVers are technocrats - they give no thought whatever to the content of the communications they are transmitting. It is RF purely for the sake of transmitting RF and nothing more.

"What professional broadcasting has and ATV desperately needs is a corps of creative talent. We need hams who are willing to be writers, producers, directors and on-camera talent to go out, dream up some truly innovative programming ideas and carry these ideas to a logical conclusion.

"I have to tell you that every time I bother to tune in on local ATV and see the same crapola that I have seen for the past 15 or 20 years, I can easily understand why ATV is such a transient mode. Its attraction wears thin very quickly, and the ham who was so gung-ho in September has gone off to Packet or back to his FM repeater by January.

"So what can be done to turn this around? Here are some ways:

1. Openly solicit and print articles on basic TV production using home video gear.

2. Solicit and print article on professional TV production: how shows are written, how to edit, proper camera and shooting techniques.

3. Solicit and print articles from those of us who produce and direct the ham videos.

4. When new ham radio-related videos come out, review them for content and interest.

5. Solicit and print articles about broadcast and film professionals who are also ATVers.

6. Consider writing and publishing an ATV show production handbook.

7. Run an annual contest for the best ATV shows - hold the ATV Emmy awards - tape it and bicycle the tape around to all ATV repeaters.

8. Form a national ham radio news bureau. Solicit tape of major ham happenings and produce a monthly 10-minute Video News Review.

"There are probably tens of thousands of other - and maybe even better - ideas, but sitting up at 2 AM and with this flu bug it is hard to think of them. Suffice to say that ATV can be made interesting to a lot more hams if it offers a bit more than Pete's parakeet and Mary's sewing box. Until it does, I am afraid that I and a lot of others will watch satellite TV instead.

"It's your deal. 73, Captain Betacam."

Strong words, but would you disagree? And now here's Hans HB9SVW from Switzerland adding his thoughts on the malaise and disappointment of the ATV mode, as he puts it. Part of the problem there is the physical nature of the landscape, but the real dilemma lies deeper, as he explains.

"As everyone of us has discovered, the financial outlay is higher than plain 'phone. To transmit all the information of the complex TV signal, we need good RF quality. In mountainous regions such as ours we cannot rely on using the mountainsides as perfect reflectors, so we have to put up repeaters.

On top of the additional cost of these we must add the not inconsiderable time spent travelling from the valley bottom to the mountain peak AND a willing citizen who is prepared to have an unnamed station on his premises. The antenna and high location means there is a major risk of a lightning strike, and it won't be just the repeater

equipment that is destroyed but the whole house. Even without a direct strike, the increased voltage field can easily knock our sensitive apparatus or even just a fuse, so another trip is required (and half a day is gone).

"Another important point in my experience is team spirit. Everyone wants to benefit from the improved facilities, but when an extra pair of hands is needed to repair them, nobody can spare the time. And why is it that so few people understand you cannot erect and optimise antennas by remote control from a warm parlour? All some people can do is crack jokes over 2 metres.

"But now here's the most important point in my view, namely that people are generally unclear about the technicalities and possibilities of their chosen mode. I'll make a comparison with Packet radio here.

"Take the TCP; here we have a number of levels which make the connection and transfer the data. I found it extremely interesting to study this ingenious subject and understand what really happens when I link up to another station and how error correction really works.

"We hams are in an unusually liberal situation. If we read about some new technology we can try it out straightaway - on the air! No exams, no certificate of competence, no type approval necessary. What would other radio users give for this privilege?!?

"Well, so far so good. But what do we do with this technical knowledge we have gained? And this is where the connection with ATV comes in, though it's really a stab in the back!

"We ATVers have very few restrictions. There are limitations on the content of our transmissions, but this still leaves countless themes from which we can all profit within the definition of amateur radio and self-education, namely the study of technology and its applications. But do we use it?

"After a brief period being active on Packet, I have seen how considerable the interest is in collecting useful data. The system is highly functional and I have access to databases and hook-ups throughout Europe and via short wave, the whole world.

"But this information is silent and only in black and white. With a bit more technology and time I can transmit moving colour pictures. And then it amazes me to reflect that television is the most powerful medium in the world: just think how it is used for politics, informing and advertising. What's more, it has taken over from the printed word in books and newspapers as the prime medium for information.

"Only radio amateurs, who have advanced television facilities at their disposal, would give up an interactive, real-time sound and vision medium and go back to the written word. We used to talk about casting pearls before swine... "

Well said, Hans. Who can argue with that? So why do ATVers shoot themselves in the foot? Who is going to change all this? or should we pack up our ATV gear and admit defeat now?

## The Editor's thoughts ....

Thought provoking stuff Andrew, and for one I agree mostly with your comments and those of Hans and Bill. It is certainly true that an overriding, but mostly unintentional, sense of apathy pervades throughout our hobby. It is always left to the enthusiastic

few, for whatever reason, to actually get down to the nitty-gritty and get involved and actually do the work.

In my own experience as serving for eight years ( a short time in comparison to other committee members) on the BATC committee and six years editing CQ-TV I know only too well that the majority of the world is content to sit back and let the few do the work, yet can be easily motivated to complain bitterly if that work does not fit in with their particular needs and desires.

Also, as a past manager and builder of two ATV repeaters, I know only too well that even in emergency situations, actually getting people off their chairs to actually help is often nigh impossible. They all want the services, but they don't want to offer service. When a repeater became non-operational it was almost expected that it would be repaired poste-haste (as it invariably was) but not by them. Now what do we have, over 12 months of partial poor operation in one case and for another, operated by one of the largest groups in the country, over 3 years of reduced service.

What is the answer? I fear that their isn't one. That peculiar British disease (apparently not only British but Homo Sapien?) of Apathy Rules is the overriding factor. There is always someone else to do the job.

No motivation Rules OK! ... Mike G6IQM

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# A SIMPLE SYNC STRIPPER

John Stockley G8MNY

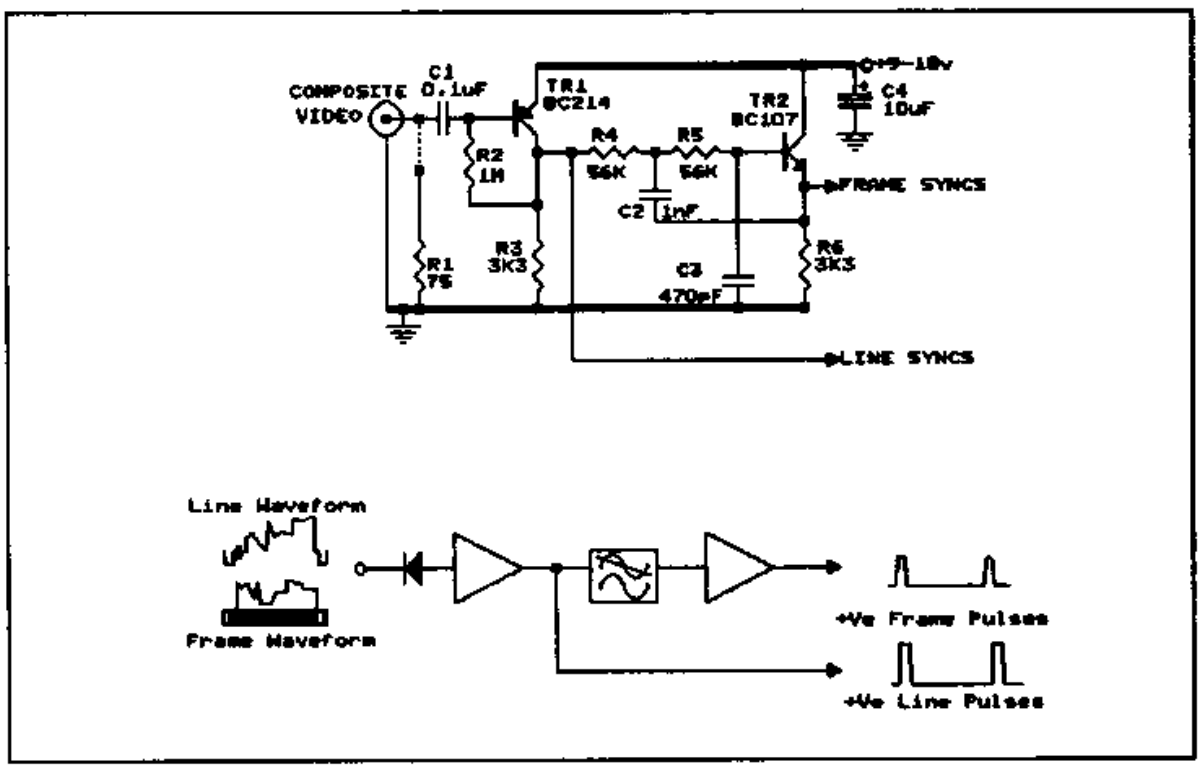
This simple circuit for genlocking cameras, etc., has a low component count and can be constructed on a piece of Vero or circuit board measuring approximately 1" x 1/2" and fitted inside a B & W camera.

The input terminator R1 is optional, dependant on whether a terminating video switcher or whatever is also being used. The circuit is designed for nominal 1V peak-to-peak composite video operation.

The PNP transistor TR1 is lightly biased through R2, so that only the negative sync tips turn it on, thus extracting all syncs as positive-going pulses of full supply swing on it's collector. Capacitor C1 is small enough to follow small DC/LF variations in the Video such as hum.

Components R4, C2, R5 and C3 form a Butterworth filter around the NPN transistor TR2. This filter has a sharp knee cut-off and a roll-off of 12dB per octave, which removes the 15.625kHz line pules completely but, leaves the 50Hz frame pulses undistorted. Frame pulses are about 50% of supply rail and also positive-going.

This may be all that is needed for some cameras, as the Line and Frame oscillators can often be pulled to give correct phase, after feeding them with a small sniff of these pulses (though a 100k etc). If the resultant phase is a half-line or frame out try injecting the pulses into another part of the oscillator circuit. For cameras that need extra variable time delays to get things spot on, try delaying these pulses through variable monostable circuits, e.g: 555 circuits.



# A VIDEO INTERFACE FOR THE PHILIPS V2000

**John Stockley G8MNY**

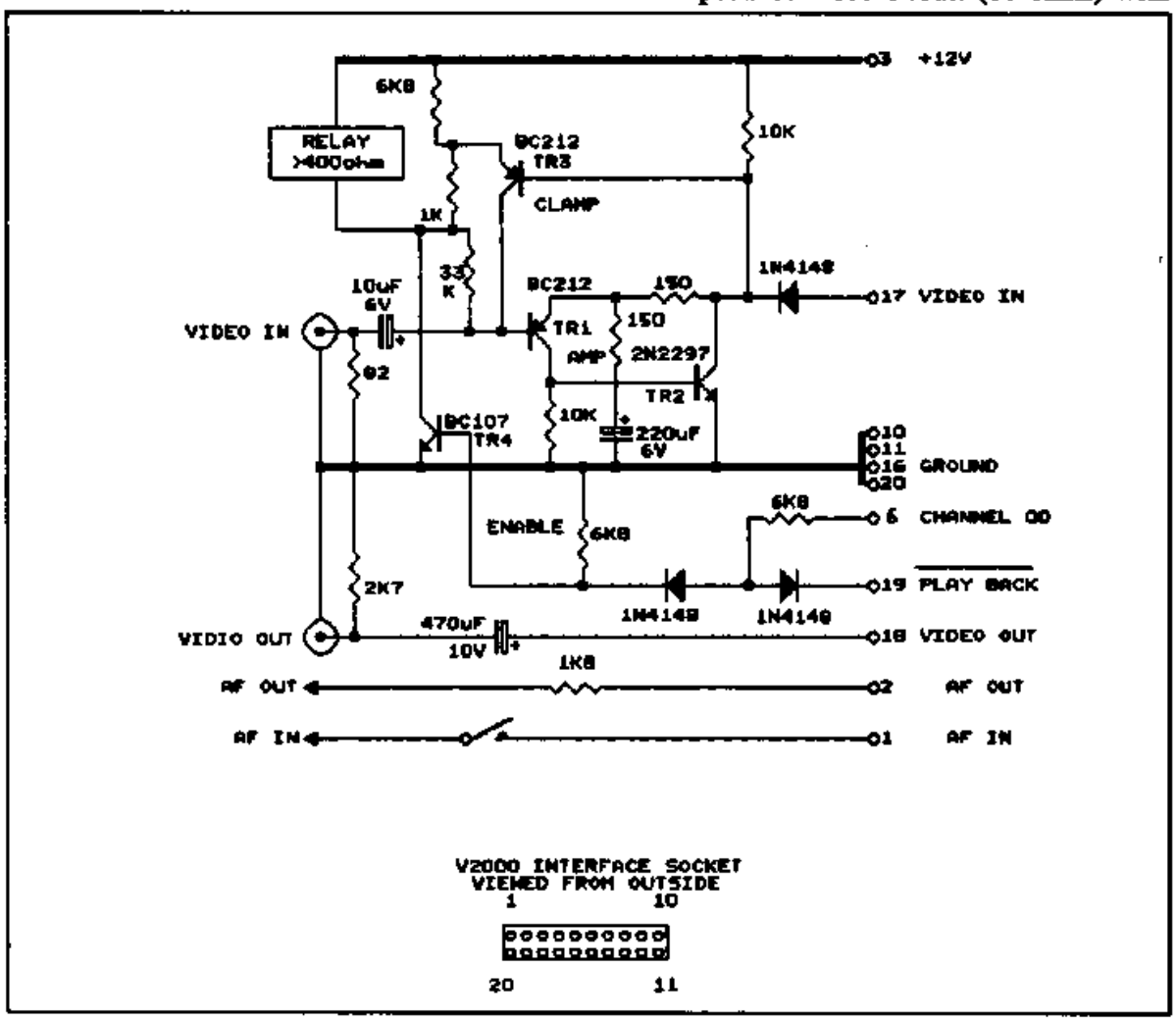
The Video 2000 system is next to obsolete, so second-hand machines prices are peanuts. With the track following moving head technology on the V2000 format, trick modes have not been surpassed until recent digital line/frame store techniques now being used by the latest top range videos.

However, there is a drawback to ATV use, video in and out are not standard (except V2334 with SCART) on the Philips models, and an extra box is needed to provide this which also has camera control features.

This circuit was developed instead of the grossly complex original. It can be housed in a small box 2 x 3 x 3/4 inches, that just plugs into the Video's 20 way socket.

## HOW IT WORKS

The input video has to overcome the internal low impedance video circuit (68 ohms) with



the right DC bias (1.4V). This is done by the hard driven TR1 and 2 combination giving the requited gain, with a TR3 PNP clamp transistor ensuring the right sync tip voltage. The whole lot is only turned on when external video is selected from "Channel 00" and not in play mode, by the resistor & diode on pins-6 and 19 thus turning on the bias for the amplifier transistors, through TR4.

To isolate the external Video from causing any interfering when not needed, TR2's collector is diode fed to pin-17.

The sound output is partly protected by the series 1.8k as it is possible to zap the output op-amp (I know). The AF IN needs switching with the VIDEO IN a miniature relay driven off of TR 4, this isolates one's shack mic when recording that late night program!

## PLUG & SOCKET

This is hidden behind an oblong cover. I was unable to obtain the right plug, but I found the pins from a female 25-way RS232 computer plug fitted, so I manufactured one.

I first gave the socket a quick spray of furniture wax, to prevent the resin sticking. With the video on standing on its front I put in all 20 pins, mixed up some liquid car filling resin and poured enough in to be level with the top of the socket.

When set solder the pins to both sides of a piece of tin can and pull the new plug straight out. Clean up the edges with knife or file if the fit is not quite right.

I have made two plugs this way and both work very well.

# BEYOND TTL

*Part-3*

**Trevor brown G8CJS**

This month I am returning to the hardware side of things, with a look at I/O, which stands for Input/Output. So far in our roger bleep we have only had output in the form of a single flip flop, which could be set and reset under software control. We had no input and used reset to start the programme, which terminated in a halt statement, where it waited for a reset.

Input in its most simple form is a tri-state buffer connected to the data bus, with the tri-state enabled by a decoded address ANDed with read and, in our case, IORQ, so the software can enable the buffer and look via the data bus to see if its input is a logic 1 or 0.

The software then goes one of two ways, depending on the logic state it saw. The example below in Fig.1 shows a simple software input using a tri-state buffer at I/O address 03 hex, to find out if the switch is closed or open.

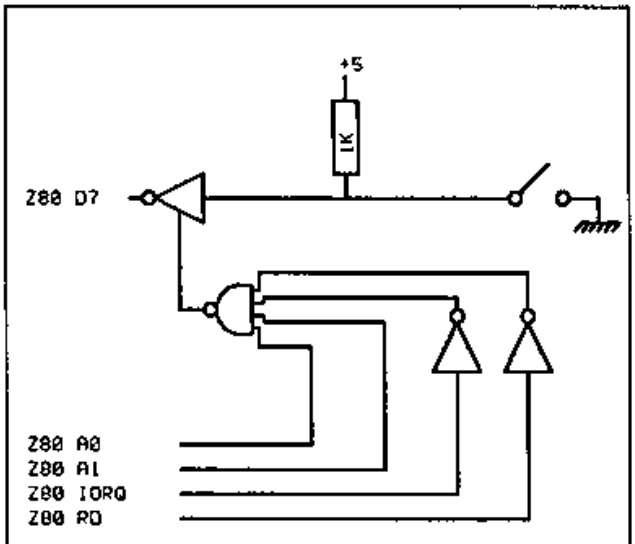



**Fig.1: A simple Tri-State Input Stage**

Instead of a dedicated I/O composed of flip flops and tri-state buffers, we could add a PPI (Programmable Peripheral Interface) chip, sometimes referred to as PIO or PIA (depends on the manufacturer). This approach is by far the best as it uses a single chip that can be selected via software to be either input, output or both.

Inputs tell the microprocessor something about the outside world, outputs control things in the outside world. In the case of our roger bleep, input is needed to indicate if the PTT is pressed or not, and output is required to latch the transmit relay and to send the Dah Di Dah.

All this and much more is possible by adding the 8255 PPI device. Fig.2 shows the revised circuit diagram which includes the PPI. The circuit has also been simplified, in that addresses A14 and A13 have not been decoded.

The new circuit is part way to the I²C CPU card, which will run the same software . The I²C circuit is more complex, but the environment is the same, and any software that runs on the Fig.2 CPU will run on the stand alone I²C CPU.

The 8255 has 24 I/O lines and needs to be told which are inputs and which are outputs. It has several modes, but we will only be considering mode 0 here. The 24 I/O lines are in three groups called ports

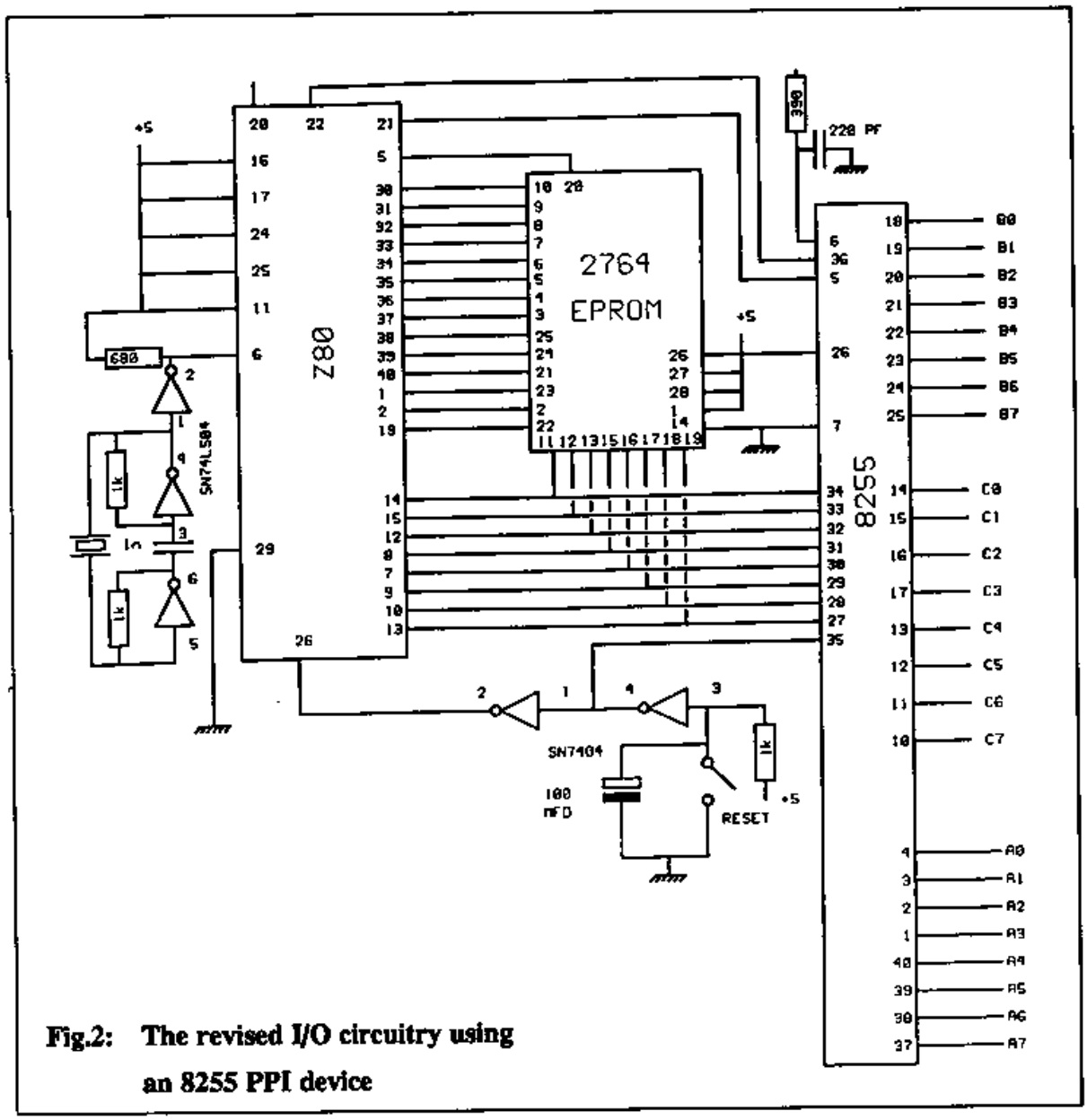



**Fig.2: The revised I/O circuitry using an 8255 PPI device**

A, B and C. Port-A can be set to all inputs or all outputs. Port-B is the same, all in or all out. Port-C is more flexible it can be all inputs, all outputs, or 4 inputs and 4 outputs.

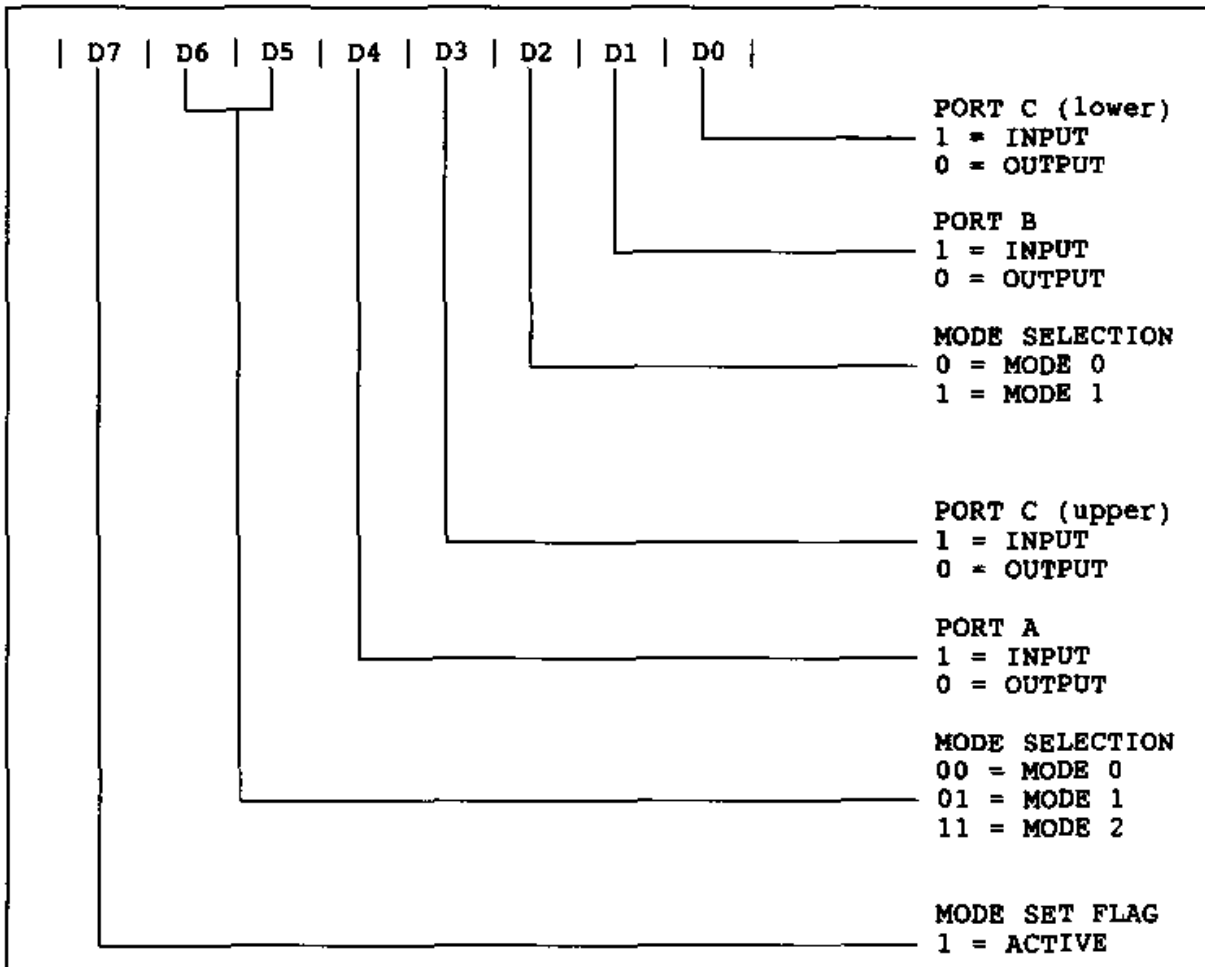
We set the directions of the ports by sending a mode word to a register called CONTROL.

We calculate the word in binary as is shown below, where 1 is an input and 0 is an output and all modes are set to 0, except bit-7 which is a 1 to indicate we are setting a mode word; more on this later.

The addresses of the ports are also important and are as follows:

| | |
|---|---|
| A | 00 |
| B | 01 |
| C | 02 |
| CONTROL | 03 |

Once you have worked out your control word load it into the A register (3E,n) load the address into BC (01,nn low byte high byte, remember) and then send it by OUT (C),A (ED 79). The 'op codes' are in CQ-TV 157 pp 41 to 43.




| D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | = 80 HEX | A OUT | B OUT | C OUT |
| 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | = 90 HEX | A IN | B OUT | C OUT |
| 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | = 82 HEX | A OUT | B IN | C OUT |
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | = 81 HEX | A OUT | B OUT | C0 TO C3 IN<br>C4 TO C7 OUT |

**Fig.3: Planning your I/O lines and setting the ports accordingly**

A word of warning, when the Z80 is reset then the 8255 is reset also. The Z80 recovers from a reset much quicker than the 8255, if it then starts sending the mode word to the 8255 it will not be understood, so a short wait loop at the start of the programme is a good idea. If we add that to our roger bleep software and then send the mode word 10000000 binary or 80 hex to the control port, then all the ports of the 8255 will be outputs.

I have included in Fig.5 some sample mode words. Once you have seen a few examples you will have no difficulty. If we add this extra software below to the head of last issue's roger bleep, then the software will run on the CPU shown in Fig.2, or the I²C CPU.

```
01      ld bc,5000      ;load bc register with
                        ;Hex 5000
00
50
0B  *   dec bc          ;reduce bc by 1
78      ld a,b          ;put contents of B into a
B1      or c            ;or C with A to set zero
                        ;flag when both are
                        ;empty
20      jr nz           ;jump if not zero,
                        ;direction and amount
                        ;set by:
FB                      ;backwards ff-fb steps,
                        ;i.e: 4 steps to *
01                      ;load bc control port
                        ;address 03 hex
03
00
3E                      ;load a with 90 hex, B
                        ;and C ports outputs,
                        ;A port input
90
ED                      ;send data in a to I/O
                        ;address in bc
79
```

The audio should arrive on PortB bit-7, i.e: pin-25 of the 8255, and is capable of driving a high impedance earpiece.

**NOTE:** Beware if you load the PPI with a low impedance, that bit of the PIO will be destroyed.

Last but not least, there is one other bit of the 8255 I would like to cover still using it in mode zero and that is the ability to set or reset an individual bit of the C port when it is used as an output. We do this by sending a word to the control port but with D7 set to zero. By setting D7 to zero and D0 to either 1 to set a bit, and 0 to reset a bit. The state of D6 D5 and D4 is irrelevant. D3, D2, D1 are a 3-bit address for the bit of the C port we wish to set or reset.

Remember, this word is sent to the control register not the C port and it will change one bit of C port only.

If you have built the I²C CPU and VDU, then you can drive the 8255 by entering the Machine code monitor. Out is the command to use and is followed by a two byte address for the port or control register and a further two bytes for the data.

Remember, the keyboard is on the A port so keep that as an input. Try setting the port to A in, B out, C out, and then setting and resetting bits of the C port first as a whole port and then as bits, by using the control register with bit-7 as 0. You can look at the

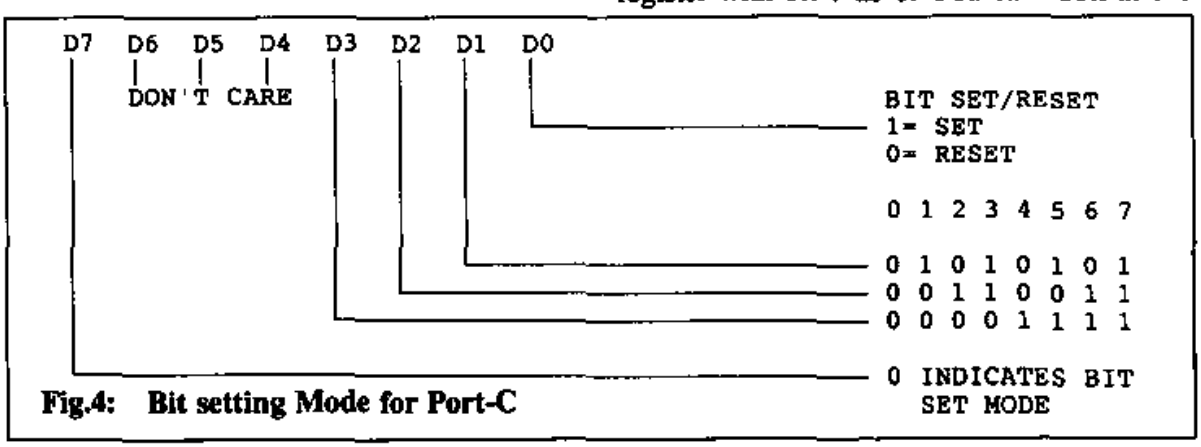



**Fig.4: Bit setting Mode for Port-C**

port pins with a logic probe or meter to see if you have been successful. You can also set the C port to input. Fit 1k pull-up resistors and ground different pins. The word you have set up can be displayed on the screen by input 02 (C port address).

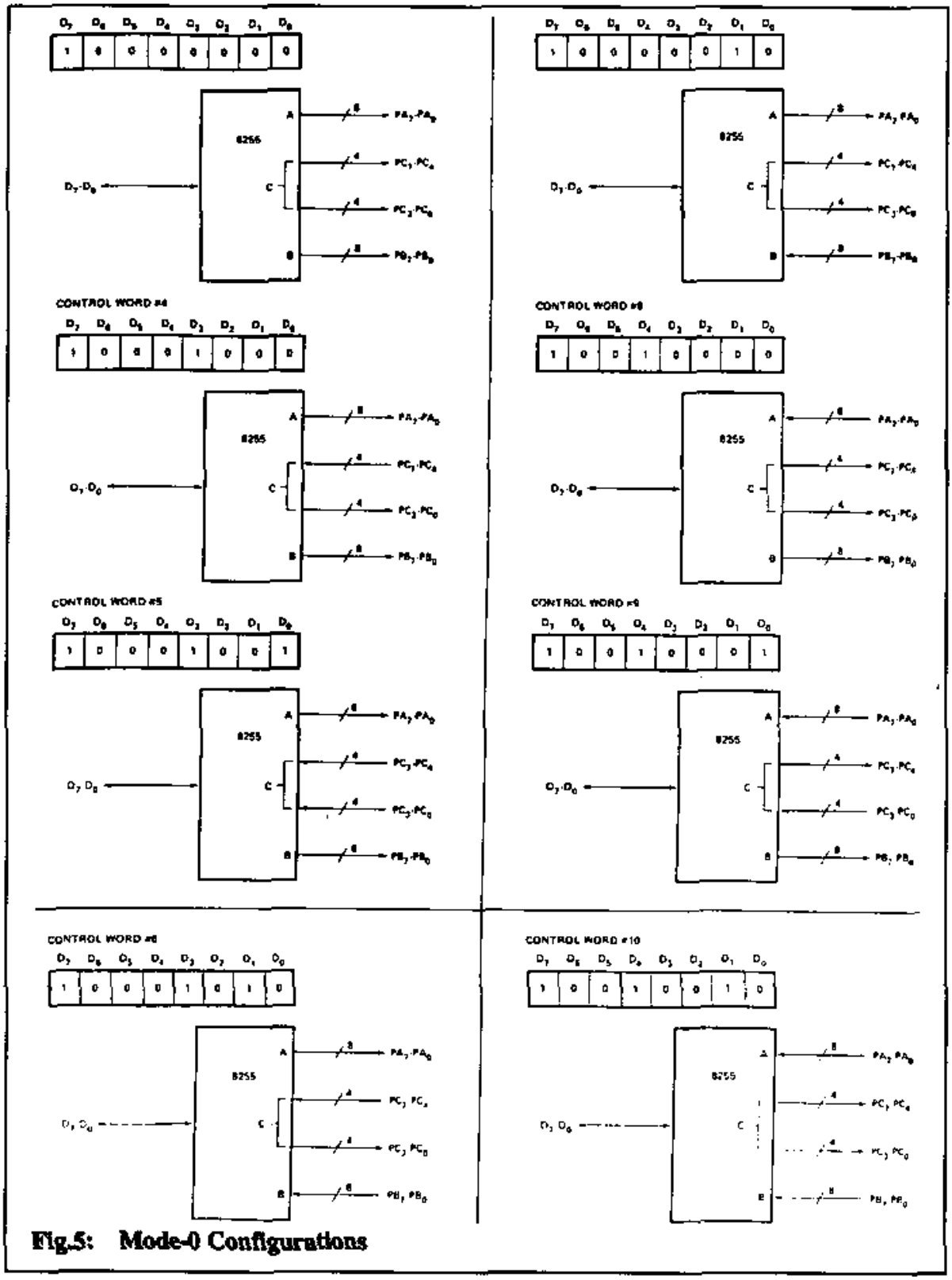



**Fig.5: Mode-0 Configurations**

# VIDEO FILTERS

**Jim Watkins**

Video filters for TV use have very exacting requirements if they are to cause no visible degradation of the signal, particularly in a colour system. All pole filters (Butterworth, Chebyshev, etc.) do not have the required slope and roll-off without having many poles.

The favourite family of filters for video use is the Elliptic function family, which have infinite rejection' at stop-band frequencies.

These filters do not have ripple within the pass-band or return lobes in the stop-band, which make them ideal for video work.

The typical response is shown in Fig.1, and it can be seen that the roll-off is very steep and the return lobes are grater than 30dB down with respect to the pass-band.

The circuit in Fig.2 is for a 5MHz low-pass filter, with 75 ohm input and output. The component count is very low, but values are fairly critical. Low K ceramic capacitors can be used together with adjustable Toko coils.

Setting up is easily achieved if a network analyser is available, but failing that the filter can be tuned by setting a generator at the notch frequencies and tuning for a minimum.

The component listing in Table 1 gives values for the components for a 5MHz or a 6MHz filter. However, the filter can be easily scaled for other turn-over frequencies by using the following simple formula:

for 'X'MHz turn-over the capacitor values are calculated thus:

new C = (old C * 5MHz) / 'X'MHz

and the inductor values thus:

new L = (old L * 5MHz) / 'X'MHz

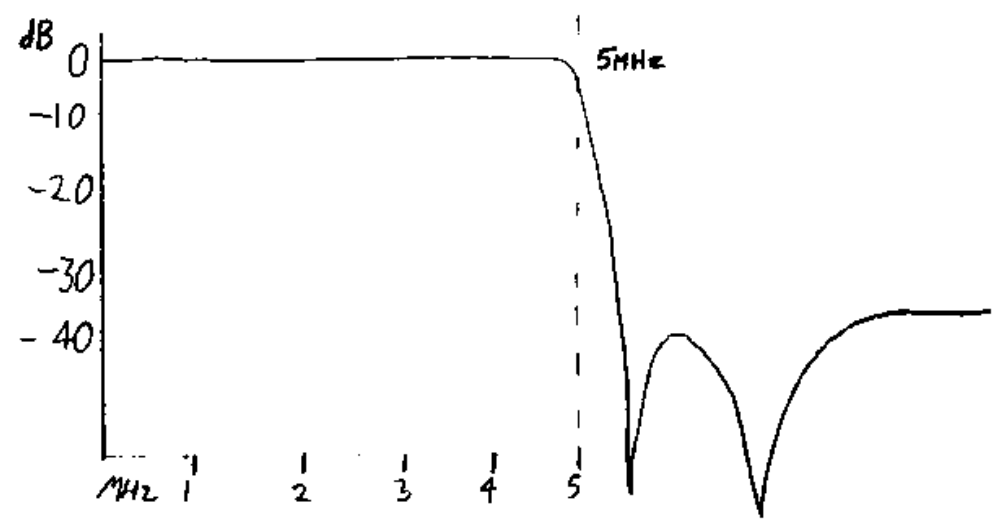



**Fig.1: A typical response curve for an Elliptic Function Filter**

| | 5MHz Filter | 6MHz Filter |
|---|---|---|
| C1 | 610pF | 508pF |
| C2 | 152pF | 127pF |
| L2 | 2.3uH | 1.9uH |
| C3 | 748pF | 623pF |
| C4 | 474pF | 395pF |
| L4 | 1.4uH | 1.16uH |
| C5 | 435pF | 363pF |

**Table 1**

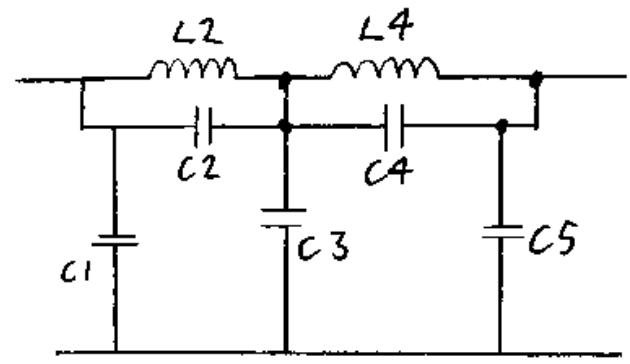



**Fig.2: Video Filter circuit diagram**

# TV ON THE AIR

**Andy Emmerson G8PTH**

## COLOSSAL LIFT

We had some pretty extreme weather this past January. Strong gales attacked antenna systems, leaving mine at least leaning over at a drunken angle. In fact, it has been so unpleasant outside that I have not yet been up on the roof to fix them.

More unusually, the month of January provided some periods of steady high pressure. The resulting lifts must have sent some hearts racing!

Here in the Midlands, we noticed how it played havoc with broadcast TV reception on UHF. All four channels on Sandy Heath were unviewable on one evening, and only by retuning to Sutton Coldfield could anything half watchable be seen.

The BBC did at least apologise, and the next day even our local radio station had the weatherman from the local airfield explaining what had "gone wrong".

For the ATV fraternity nothing at all had gone wrong. Phil G1HIA in Bristol rang up to say he had got P5 reception reports from France on 24cm, sending just 1.5 watts. His QSO partner was Jean-Francois F1EDM (presumably still living in the Le Havre region), and the pair of them achieved a 20 minute full-duplex sound and vision link-up on the evening of 30th January. Pictures in both direction were P5 quality, with F1EDM transmitting 40 watts on 70cm and Phil, as mentioned, with 1.5W from an Aztex transmitter on 24cm. The path length was 286km. If nothing else, this illustrates that you don't need a big expensive station to work the DX, just common-sense looking for the signs of good DX.

## DX VISITOR

I was pleased to receive a visit recently from Ivan Javorsky. Ivan comes from Ostrava, Czechoslovakia and has just quit his job as head of technical operations at Moravian

TV. Now he's on a British Council four-week course learning about the British way of making TV programmes, and hopes to work on a cable channel or as an independent producer when he goes back to Czechoslovakia.

A keen follower of the ATV scene (he reads CQ-TV of course!), he was introduced to the BATC committee who just happened to be having a meeting on the day of his visit.

He told us that a "TV pioneer" in Ostrava built a 405 line receiver many years ago and received British programmes by sporadic E on occasions until a local band I transmitter opened up and blocked the airwaves.

He also explained that a massive conversion exercise has started in his country. Their next TV transmitter to be built (in Bratislava) will transmit PAL G colour and sound. All Czechoslovak television will migrate from SECAM to PAL, but because of the cost, it will be phased over 10 years. While modern sets can handle both PAL and SECAM colour and any sound sub-carrier, there are also some Russian-made single-standard sets in use and their owners will be reluctant to scrap these straightaway.

## LOWESTOFT GOES LIVE GB3LO

Britain's newest television repeater entered service on low power last December. Output power is one watt from a pair of bow-tie antennas at 88 metres above sea level, co-sited with the 70cm voice repeater GB3YL.

While not in repeat mode it radiates a series of useful test signals including the BATC Handbook test card, also some teletext-style information pages. A callsign page with CW ident is radiated at regular intervals too.

Even at low power, initial coverage is good. Paul G8JBD is just one kilometre from the "box" and has worked Andy G8VLL in Norwich, a distance of 35km. Signal reports have been received from Dick G4RRX also in Norwich. When funds permit a Mitsubishi "brick" PA will be purchased. Donations and signal reports please to Allan G4KDL care of RA Electronics, 133 London Road South, Lowestoft, Suffolk. Well done lads - I hope you get some juicy Continental (and British!) DX through the repeater.

## HELP WANTED

Tony Fell G7DGW reminds those who can spare the time that they might wish to be become instructors for the novice licence. The novices, he says, are permitted SSTV and on 1.3GHz and 10GHz fast-scan ATV; bearing in mind how most people can relate to TV, this might be a good way for ATVers to demonstrate their expertise. "As you are probably aware, we have yet to achieve 26 class A novices, but over 260 B novices exist, serving to demonstrate that Morse is at the very least of limited interest to the young people of today," says Tony. "Being an instructor myself, I can tell you the course, based as it is on hands-on practical experience, is very rewarding. Indeed I now find this approach preferable to the standard RAE class I teach, but I am lucky to give practical work there too."

## SLOW-SCAN NEWS

Thomas GM4CAU, probably Britain's last practising slow-scanner judging by the lack of other reports, writes: "The Sunday sked on 7.095MHz is now well-established. The invitation to others who have built the

G3WCY/G4ENA system has produced no newcomers at all. Despite the QRM on 40 metres good pictures have been exchanged between Britain and Belgium. When conditions permit, we occasionally QSY to 20 metres (around 14.235MHz) where the level of QRM is much lower.

"Conditions on 20 metres have been rather low since early October, so the level of SSTV activity has been low too. I read with interest the article by Mike G6IQM "A New SSTV Standard" and agree with him wholeheartedly. The entry price certainly deters many who would like to try SSTV. Even the construction of the G3WCY/G4ENA deters many would-be newcomers to SSTV.

"So the time is ripe for a new approach in order to encourage many more to try SSTV. A reason for joining the 7.095MHz net perhaps! At least it is somewhere to thrash out the details of a new standard. SSTV adds a new dimension to a QSO, especially on the HF bands, enjoyed only by a few.

"I am busy trying to eliminate RF problems (on transmit) when operating on the HF bands. No problems like this on two metres -only lack of activity."

Well, I didn't say it, an SSTVer did! Is it not time to declare slow-scan once and for all dead in Britain now? Shouldn't we just hand over their spot frequencies to packet? I am merely being provocative, not offensive, when I say this mode seems to have ground to a total halt. Prove otherwise to me!

## NEWS FROM FRANCE

Here's the part of the AGAF Convention report that I lost before!

There were also amateurs from France and the Netherlands at the convention and one of them was Gervais Mouquet F1BPO. He revealed that a new TV repeater was under construction in France, at Amiens. Input will be on 1255MHz FM and output on 438.5MHz AM, positive modulation of course. Audio input is on 144.150MHz, either FM or SSB. A second TV repeater is being built, using the same frequencies, at Cormeilles in the Parisis region.

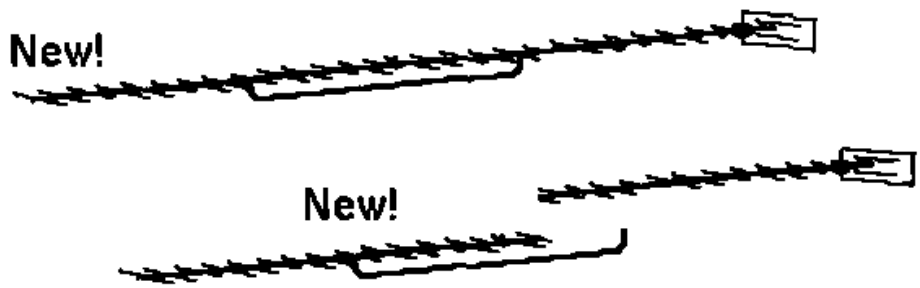
And that's it once more. Please keep your reports coming in so that we can all keep up with what's going on in amateur radio's most highly developed mode!

The address as ever is:

Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH.

You can Fax copy to 0604-821647, but I am not on packet.

## Severnside Television Group Aerial Products




**New!** A 38 element high performance version of our famous 23 cm aerial 14 db gain, SWR less than 1.5:1 and 1.8 metres long. Remember - all STG aerials are wideband to cover the repeater input and output.

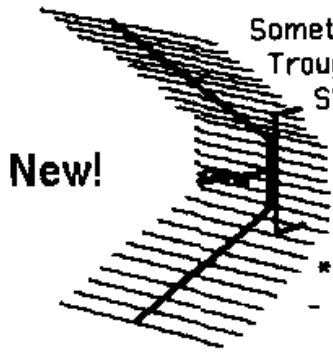
* Launched at the BATC Convention Harlaxton 3rd May 1992

**New!** No need to buy a new aerial, our 20 element extension upgrades your existing 18 element STG aerial to the full new 38 element specification Everything you need is supplied.

* Launched at the BATC Convention Harlaxton 3rd May 1992

The original 18 element wideband aerial is still available. 10 db gain SWR is less than 1.5:1, and 90cm long and it covers the repeater input and output.

Still only £14.00 each, p&p £3.50 (1 or 2 items) £5.00 (3+ items)




Something different for the mast! A 23 cm wideband Trough Reflector. 11 db Gain across the whole band SWR is less than 1.5:1 Overall dimensions: 55cm high, 35cm wide and 30cm deep. Supplied as a complete kit of pre-formed & pre-drilled parts for easy "screwdriver" assembly, no tuning is needed.

* Launched at the BATC Convention Harlaxton - 3rd May 1992.

**Telephone 3rd May for new product prices**

We regret that we can only post aerials to UK addresses. Delivery 28 days. Cheques Payable to "Severnside Television Group". Send to 15 Witney Close, Saltford Bristol BS18 3DX. Tel: 0225 873098 (after 7pm & weekends only please)

# AMIGA BITS AND PIECES

## AMIGA 500

### Richard Guttridge G4YTV

The Amiga series of computers are 'The Dream Machine' for anyone having to produce graphics or sound for video productions of ATV. The Amiga 500 or the 500 Plus are the starting end of the range. The basic machine price with 1M of RAM is around £330. This package will usually include some software, a TV modulator A520, a mouse and 512K of extra RAM, with an internal clock, but NO colour monitor. A suitable monitor costs around £230, but remember to get one that has an analogue RGB input as well as a composite video input, most monitors only have TTL RGB inputs.

The Amiga can run more than one program at a time (multitasking), which can be very useful. I use one during ATV contests, a program called 'Deluxe Paint 3' produces the contest number screens, whilst another program run the contest log and prints out a hard copy.

The program 'Deluxe Paint 3 or 4' is a must. You can design all your own test cards, station idents, contest numbers and super cap your video tapes or live action, that means superimpose the speaker's name along the bottom of the screen whilst they are on the screen.

You will need a Genlock unit such as 'Minigen' to do this of course. This add-on unit costs around £100 and enables you to lock (synchronise) the composite video signal from the computer to another source, e.g: camera, VCR, another computer, etc.

The Amiga is one of the most versatile computers on the market today in its price range. It will also do all the usual things you might want a computer to do, given that you feed it the right software.

A few Amigas and some software appear at rallies up and down the country, as well as in the 'For Sale' adds in local papers, at prices well below those quoted here. So, if you want one keep your eyes open!

### Andy Emmerson G8PTH

## AMIGA MAKES MOVES ON MULTIMEDIA

Multimedia is a pretty dreadful word: to the seasoned cynics in computing and video it looks like nothing more than vapourware or at best, a solution looking for a problem. Worse still it is often brandished as an over-the-top description for something conceptually far simpler (rather like calling a typewriter a standalone zero-memory word-processing station!).

Be that as it may, Commodore are now marketing their top-of-the-line video computer as a multimedia machine. I hope that doesn't confuse you but the specification sounds quite tasty anyway. This is what the company has to say.

The Amiga 3000 has just become a more attractive proposition to creative businesses or single media producers as every Amiga 3000 now comes supplied with three powerful multimedia tools, Scala, AmigaVision, and Deluxe Paint IV, at no extra cost. Amiga 3000 pricing starts from £2,999 excluding VAT.

The package marks the first time that paint and animation programme Deluxe Paint IV has been bundled with any machine. Deluxe Paint IV, supports overscan for desktop video, 3D perspective, animation, and allows work with all 4096 colours on screen.

Barry Thurston, director of Commodore's newly formed multimedia division, says; "This latest package makes multimedia available at a realistic price for any creative business user. The Amiga 3000 is ideal for use in corporate communications and presentations, interactive training, animation, and control and simulation procedures."

AmigaVision, Commodore's own award-winning authoring language, integrates all Amiga file types into an icon-based flow chart, and so allows users to assemble their own presentations, integrating animation, audio, text and graphics files.

Scala is an easy to use business presentation system with a button-style interface. It includes an eight disk set complete with display backgrounds, a wide variety of fonts for text overlay, and support for ASCII and PostScript files and the Canon Ion player.

Apart from design, the range of broadcast and domestic genlocks for the Amiga, make all this software equally appropriate for desktop video within the audio-visual industry.

If this interests you, it would be worth contacting a specialist dealer or Commodore Business Machines (UK) Ltd, Commodore House, The Switchback, Gardiner Road, Maidenhead, Berks. SLY 7XA. Tel: 0628-770088. Fax: 0628-71456. Clearly the price means that this machine is not for the average hobbyist, though an accomplished amateur might well be able to use this machine as the basis of a one-man business. Who knows? It would be good to have feedback from readers with experience of upper-end Amiga machines - are they proper tools or just an expensive toy? Similarly, is there commercial work out there that an Amiga can help you capture? Let's hear from you!

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# VIDEO SWITCHER

**Anthony Fouracre**

After having more video signals than I knew what to do with, I realised that I just had to make provision to control them properly. Having developed the switcher described here, I thought that there are probably many other TV amateurs in a similar situation, which is the main reason for this description.

I decided that I would make sure this mixer catered for future expansion so I have provided no less than sixteen channels. Of course the design may be modified to suit other requirements.

After looking at several ways to encode pushbuttons and decode to drive crosspoints, I fount two integrated circuits, both CMOS which use a minimum of external components, these are; 74C922 16-key encoder and CD4515 4-bit to 16 decoder.

## FEATURES

♦ 16 inputs with vertical interval switching of crosspoints.

♦ The option of using 16 buttons on a remote panel with a minimum of seven wires to IC1 and IC2.

♦ Gain and equalisation adjustments to compensate for losses in the switcher iv) Sync tip clampinG.

## CIRCUIT DESCRIPTION

**VISION PATH:** All incoming video signals (which should be synchronous - ie: locked to a common sync system) are terminated in 75-ohms then AC coupled to the associated input transistor.

Let's suppose that input one has been selected. IC3 pulls the base of Q2 down to around 2.7v which biasses the base/emitter junction of Q1 and emitter/collector junction of Q2 which allows the video signal to pass to the common buss and output amplifier.

The output has three transistors; Q3,4 and 5 with a preset control and capacitor wired in the feedback circuit to adjust gain and HF response. IC7 and its associated diode wired from the output to the video amplifier input, forms a DC sync tip clamp. The video output amplifier is capable of driving two independent loads, both terminated in 75-ohms.

**VERTICAL INTERVAL CIRCUIT:** Q6 input buffer and the sync separator formed by Q7 and 8 separates the vertical component from the sync signal. Q9 and 10 forms a 20mS multivibrator whose negative-edge triggers IC5 which forms a delay to about line 9. IC6 forms a 1uS pulse which is used as the switcher's vertical interval pulse.

**BUTTON ENCODING AND DECODING:** When any of the pushbuttons is depressed it is encoded into four bits together with a strobe signal, by IC1. IC1 has internal pullup resistors and an anti keybounce circuit, controlled by the capacitor on pin-6. This means that almost any momentary closed buttons may be used.

IC2 requires a four-bit strobe to decode and latch the button logic. The chip can also

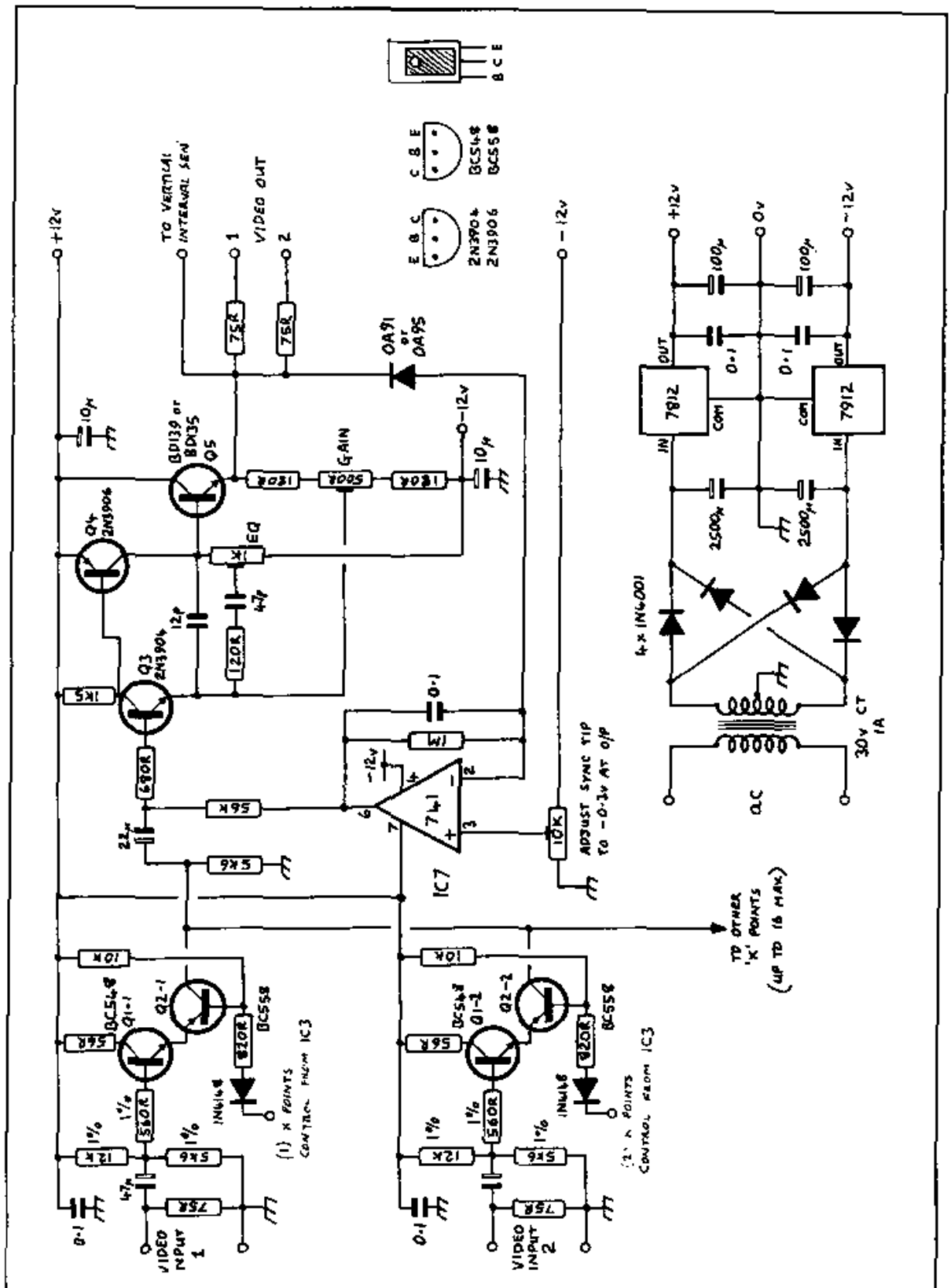



**Fig.1: Video Switcher Circuit: Video Circuitry**

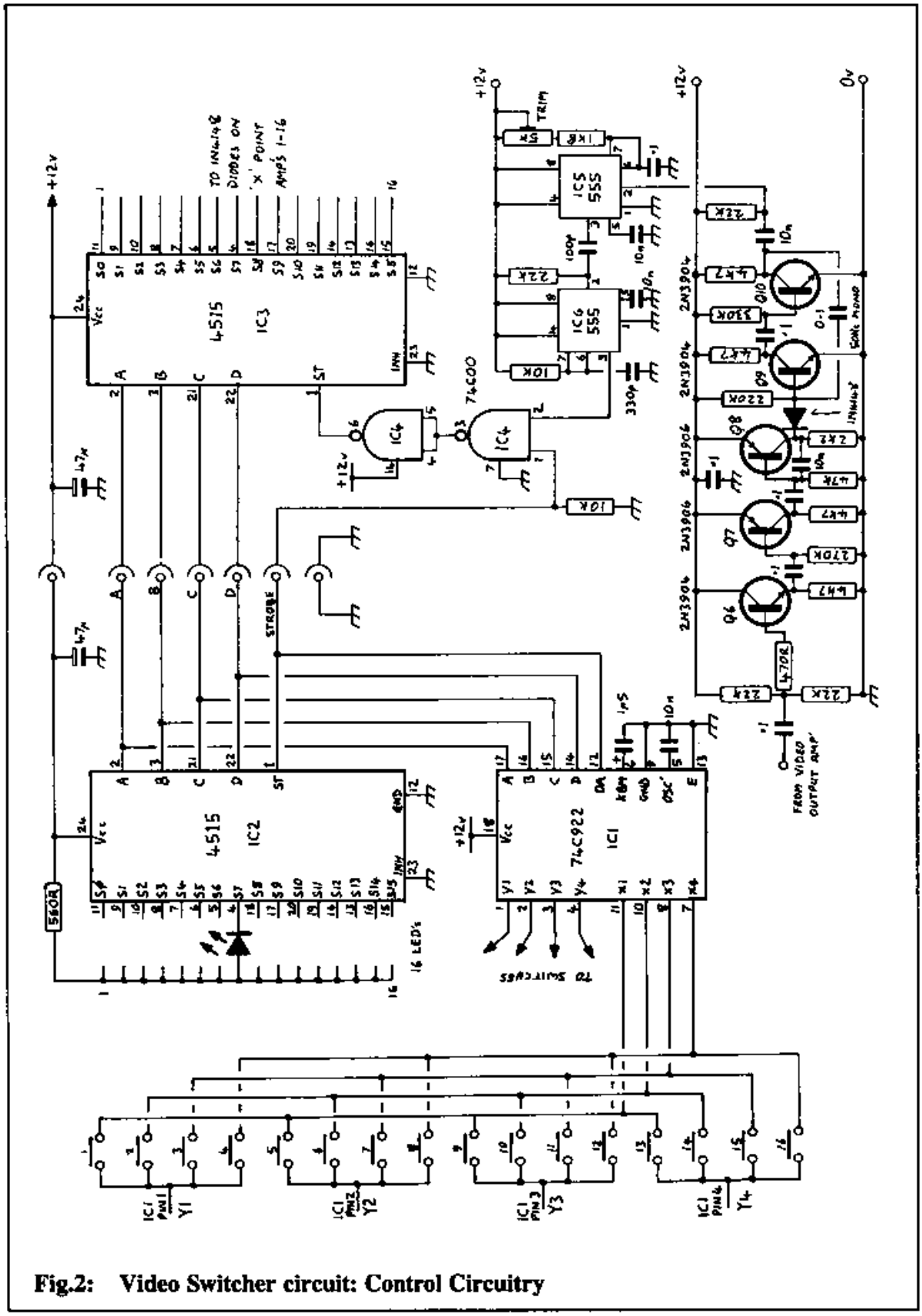



**Fig.2: Video Switcher circuit: Control Circuitry**

drive LED's as shown in Fig.2 or it can even drive small 12v bulbs provided their current consumption is no more than 40mA. I used Schaddow pushbuttons (available from Electromail/RS Components) which have LED's mounted in them, but there is no reason why you couldn't use illuminated push buttons with lamps in them.

IC3 output drives the crosspoints. Whenever a button is pressed the strobe is gated with the vertical interval signal at IC4, then sent to pin-1 which decodes the appropriate output and switches the crosspoint.

## CONSTRUCTION

I built the whole switcher on several pieces of Veroboard and encountered no real problems. However if the supply regulators get a bit warm they should be fitted with heatsinks.

I also found slight problems with DC bounce between crosspoints, so I changed the resistors around Q1-1 to Q1-16 to 1% types, and I used a 22uF tantalum capacitor between the crosspoint buss and the input of the video amplifier.

## SETUP

Feed colour bars or other test signal to input-one and check that the signal appears at the output. Check the other inputs similarly to make sure they all work, if so terminate the output in 75-ohms. Monitor the video output with an oscilloscope (DC coupled).

Adjust the 10k trimmer at IC7 so that blanking level sits at 0v dc or the sync tip is at -0.3v. Adjust the gain and equalising controls to produce unity gain at the output. You may have to check these adjustments again.

Adjust the 'TRIM' control at IC5 so that the vertical interval pulse is on line-9 and check that the pulse width is about 1uS.

# SATELLITE TV NEWS

**Trevor Brown G8CJS**

We start this issue with a mystery; on February the 8th Kopernikus suffered a second outage, this time it received a close-down signal, presumable from DBP, but no one at DBP seems to have sent the signal.

Could this be the first ever hijack of a satellite or is it just that someone at DBP is not owning up to sending the signal?

3SAT, SAT1, PRO7, premiere and Tele 5 were all interrupted along with their Astra relays. Last month Kopernikus suffered a tracking error and went into survival mode.

BSB receivers are apparently being installed by unscrupulous dealers that are not pointing out that the service finishes at the end of this year.

The receivers are also surfacing in Ireland in large numbers and purchasers are unaware that it is illegal to enable a BSB receiver in

Ireland. Pirates get around the problem by registering them in the UK.

Still on the subject of BSB, it looks likely that one of the Marco Polo spacecraft is to be sold to Sweden, to be collocated with Tele X for a wide-screen 16:9 service.

Last but not least on BSB, it is rumoured that there is some software around for the Philips BSB receiver, that enables it to work on D2 MAC, but as yet none has turned up on my desk (hint).

The war between the Adult Channel and After 12 seems to be warming up, with after 12 claiming that the Adult Channel does not have broadcasting rights to all its programmes, and suggesting that the ITC may revoke its licence.

The BBC World Service is expected to launch on Eutelsat in the next few weeks. Eutelsat is about to embark on a marketing campaign along with super Channel to promote 13 degrees East.

This slot is Eutelsat's answer to Astra, and Eutelsat plans to collocate a second bird in this slot later in the year, which will increase the number of channels to 40.

Thames Television may be looking at Astra 1B with a view to a service funded in part by advertising and in part by subscription. They were in Monte Carlo this month buying programmes, although nothing may have been signed.

If Thames are to operate a subscription service then presumably they will need access to Videocrypt and Sky's subscriber management centre, which would not seem to be a good prerequisite in a competition with Sky One.

## ROUND THE SATELLITES

### ASTRA

SES has been running some HD-MAC on Astra using transponder 28. The material was originated by ZDF and was of the Winter Olympics. Also on Astra, the Promo has been updated and can be seen on transponder 30 (11.65600 GHz V). The revised video includes the Logo's of the new broadcasters.

### EUTELSAT II F3 (16 degrees East)

Transponders 38 (11.617 GHz V) and 34 (11.678 GHz H) have been carrying HD-MAC of the Winter Olympics.

### EUTELSAT II F1 (13 degrees East)

An ITN SNG unit (UK17) was active on the upper half of transponder 20 (11.006 GHz H) during the evening of February 6th.

### EUTELSAT II F2 (10 degrees East)

Brightstar was active for several hours on transponder 20 (10.987 GHz H) during February the 6th. The broadcast was in clear PAL with the test card caption identifying UK1-1.

### EUTELSAT I F4 (7 degrees East)

World Wide Soccer appears to have taken transponder 12 (11.656 GHz V) as its new home.

### TELECOM 2A (3 degrees East)

The 1992 Winter Olympics commenced in Albertville France with Telecom 2A providing a Variety of Video Material. Transponder R1 (12.522 GHz V) was carrying D2 MAC material and R3 (12.606 GHz V) has been carrying material for Japanese Television in clear PAL.

# D MAC PACKET - AN OVERVIEW

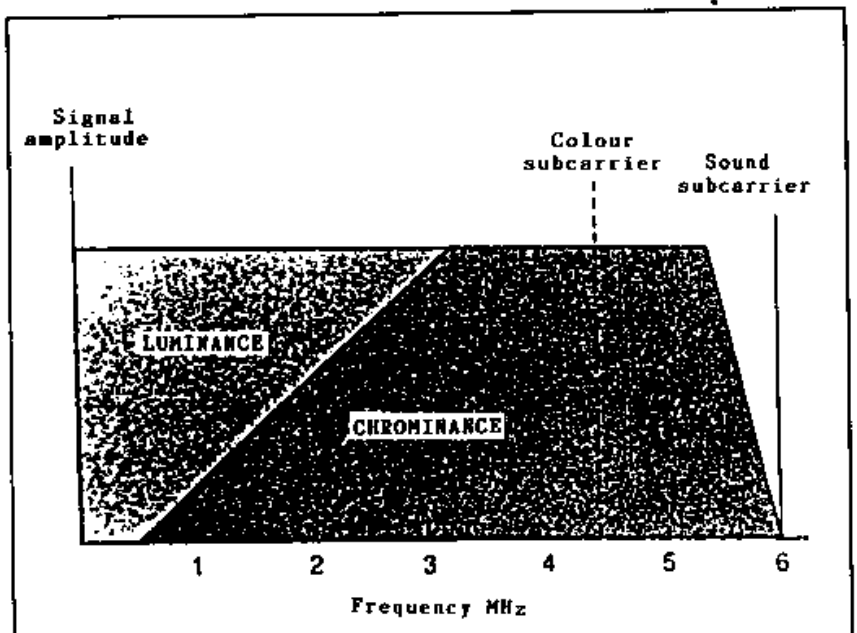
**Trevor Brown G8CJS**

D Mac Packet is one of the new TV systems designed to work with Satellite Television, unlike PAL, SECAM, and NTSC which were designed to be compatible with monochrome receivers, with the colour information added in such a way as to fit within existing channels of limited bandwidth. D Mac Packet was designed to get the best out of a 27 MHz DBS channel, using FM modulation.

The problem with FM is that noise rises with baseband frequency, unlike AM, where the noise is linear. Because the aforementioned systems use subcarriers to convey the colour information, the colour is effectively moved up in baseband frequency to where the noise is greater, hence the increase in chrominance noise.

The basic principle behind MAC (Multiple Analog Component) is that time compression is used to keep luminance and chrominance information separate. No subcarriers are used at all. The TV line (64 micro seconds) is then composed as follows: the U and V signals are time compressed by 3:1, this reduces their duration from 52 to 17.5 micro seconds.

The U andV components are transmitted alternately on different lines and are followed by the luminance information, which is time compressed by 3:2, reducing its duration from 52 to 32 micro seconds, so that both signals can be accommodated sequentially on a single TV line as per Fig.1. This process of time compression results in an increase in bandwidth from 5.7MHz to 8.5MHz of the baseband signal.




**Baseband spectrum of Pal System I. Adding a colour subcarrier introduces spurious patterning effects. Also, in FM systems, areas of saturated colour are subjected to a disproportionate amount of noise.**

The traditional sync pulse is replaced by a 10 micro second burst of data. The data is coded by a duobinary system, that uses three levels (Fig.2 ) resulting in 206 bits of data per burst or TV line.

The digital data is organized into packets each containing 751 bits.

The data burst is on lines 1 to 624, line 625 is composed entirely of 1296 bits of data. The majority of the data burst at 198 bits per line is used to convey the sound and data of the multiplexed channel. The 198-bit burst is divided into two sections of 99 bits which form over 623 TV lines into two subframes.

Line by line, the bits in each subframe are arranged into discrete entities called packets, where each packet contains 751 bits. Together both subframes contain 164 packets (123,354 bits per TV frame). The data contained in every packet is preceded by a header of 23 bits, which allows the receiver to recognizes and select the packets required for a particular service, that is sound, Teletext, or data.

## PICTURE SYNCHRONISATION

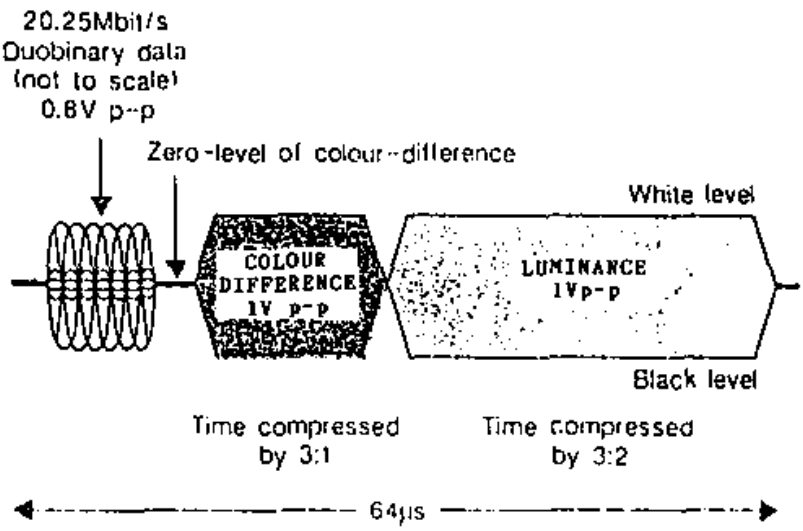
All the frames of the D mac signal contain 625 lines at all times, each line commences with a 6-bit word to provide for line and frame synchronisation. Frame synchronisation can also be obtained from the further sequence of bits transmitted in the data of line 625.

## SOUND

Various combinations of sound channel types and data can coexist at any time, providing that they can be accommodated within the data capacity. High quality sound with a digital sampling rate of 32kHz offers channels with an audio bandwidth of 15kHz coded in either 14-bit linear, or near instantaneous companding 14-10 bit (NICAM) formats.

## TELETEXT

The sound/data multiplex can also be used to carry Teletext with a capacity far in excess of the present day terrestrial television services. Teletext decoding can be carried out by either the indoor MAC decoder or can be transcoded into the vertical interval for a conventional system I Teletext receiver.




**Baseband video waveform of a D-MAC television line. The duobinary data burst conveys 206-bits and is followed by time-compressed vision signals.**

## WIDE SCREEN

By use of alternate expansion ratios of 2:1 for luminance and 4:1 for chrominance then 16:9 pictures can be

accommodated. For compatibility with conventional 4:3 aspect ratio TV sets Pan information can be transmitted to enable the narrower screen to display the correct part of the wide screen, as set by the broadcaster .

## SCRAMBLING

Because the sound and vision signals may be divided into discrete samples, the MAC waveform lends itself to scrambling techniques. The programme provider may as he wishes allow receivers to decode the signal free of charge, by sending the receiver the correct key signals to unlock the scrambling, or alternatively the programme provider can decide to send the unlocking keys only upon a payment by the customer.

A technique also exists developed by the IBA engineers whereby customers may be individually addressed over the air for each transmitted service or part of service.

## SIGNAL TO NOISE

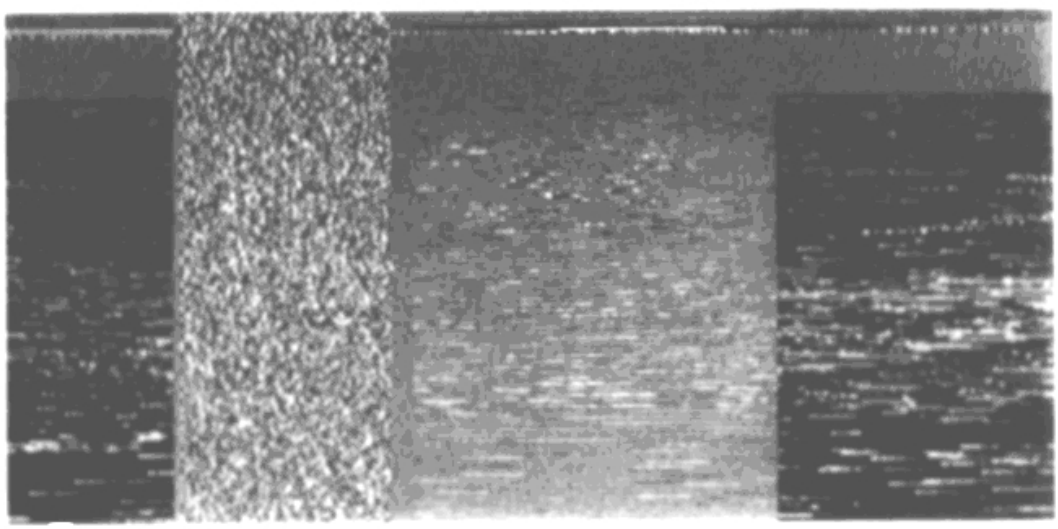
The received transmission characteristics have been calculated to ensure that the signal to noise ratios of colour difference signals and luminance are well matched.

Subjective tests have also been conducted to determine the level of MAC picture quality with various carrier to noise ratios. It was found that good quality vision (CCIR grade 4) can be obtained with a carrier to noise ratio if 12dB.

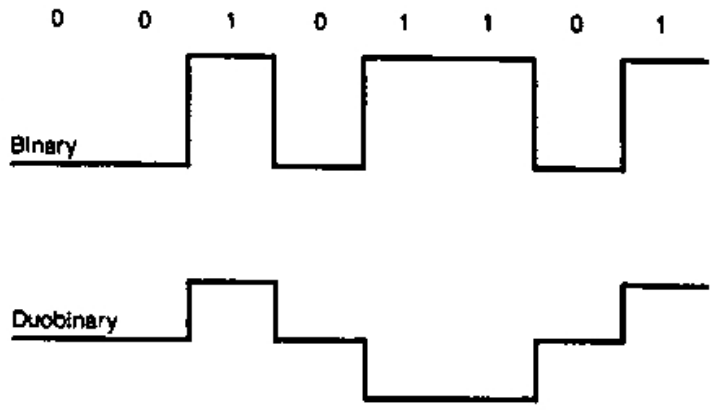
The sound was also subjectively tested and found when NICAM coding is employed good quality sound could be produced with carrier to noise ratios of 10.5dB.

## ADVANTAGES OF D-MAC

The sound vision and data exist as a single wire baseband signal.



**Photograph 1:** **A picture of a D MAC television signal from the satellite 'Marco Polo' showing the data burst. The picture was supplied by Paul Pitson and was obtained using the method described in CQ-TV 143, page 24.**




**Comparison of binary and duobinary coding. After low-pass filtering, the three-level duobinary signal is time-division multiplexed with the time-compressed vision signal.**

An improvement in picture quality above existing systems is achieved by the separation transmission of luminance and colour difference components. In particular, cross colour, and cross luminance, problems are eliminated when the material was derived from component sources.

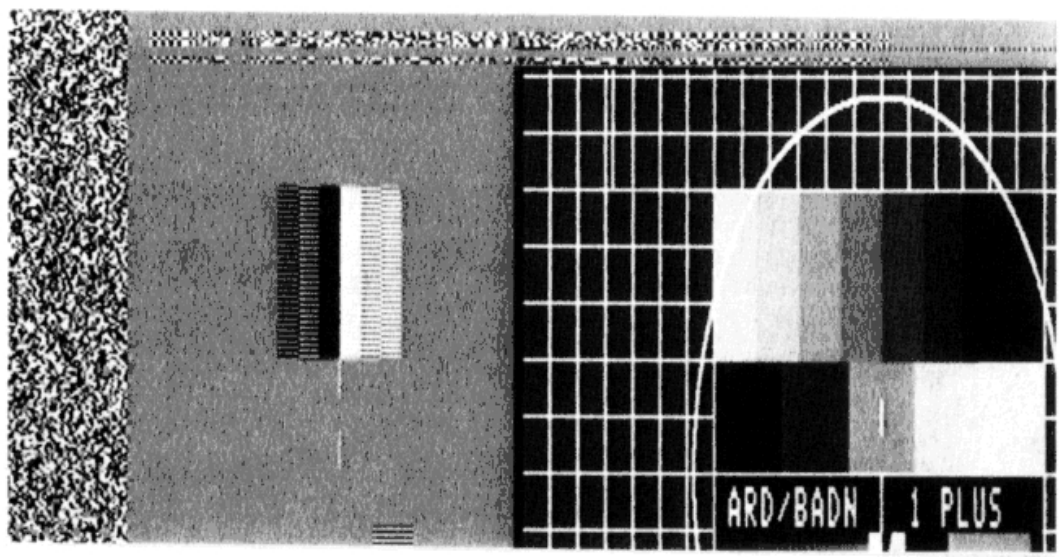
Digital sound and data encoding allows up to 8 high quality sound channels (15kHz)

A high-rate digital data burst of 20.25Mbit/s in a flexible sound/ data multiplex is available.

Scanning standard is compatible with existing receivers.

Future requirements for the transmission of wide aspect 16:9 easily accommodated.

Can be broadcast by FM satellite transmission or AM VSB cable distribution.




**Photograph 1:** **A picture of a D2 MAC PACKET television signal from the satellite at 19.2° West showing the data burst, chrominance and luminance components of the signal.. This picture was also supplied by Paul Pitson and was similarly obtained using the method described in CQ-TV 143, page 24.**

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| Photocopies of any article from past publications are available. Please quote the issue number, page numbers and the article name. Discounts as shown, prices are per sheet: | | | |
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# MEMBERS' SERVICES

Items from these lists can ONLY be supplied to CURRENT members of the BATC. These lists supersede all previous ones. Components for club projects are not available from Members Services unless contained within these lists.

PUBLICATIONS should NOT be ordered on this form. A separate form is provided for that purpose elsewhere in this supplement. We reserve the right to change prices without notice.
All Club crystals are HC18/U (wire ended).

1" vidicon tubes are available in different heater ratings (95 and 300mA) - 6" long; (EMI types 9677, 9728 and EEV types P849). 2/3" tubes have 95mA heaters (EEV type P8037). These tubes are all of separate mesh construction, with magnetic focus. Electrostatic vidicon and Leddicon tubes are available, to special order. Members requesting information on prices or other types of tube or equivalents are asked to send a stamped, addressed envelope for their reply.

| STK NO. | QTY | CAMERA TUBES, SCAN COILS, BASES & LENS MOUNTS | EACH | P&P | TOTAL |
|---|---|---|---|---|---|
| 1 | ..... | One inch Vidicon scan coils | £6.00 | £1.40 | ..... |
| 2 | ..... | 2/3 inch Vidicon scan-coils | £6.00 | 0.90 | ..... |
| 3 | ..... | One inch Vidicon base | £1.00 | 0.27 | .... |
| 4 | ..... | 2/3 inch Vidicon base | 0.65 | 0.27 | ..... |
| 5 | ..... | C Mount for lens | P.O.A. | 0.27 | ..... |
| 6 | ..... | Camera tube type | - | 1.00 | |
| | QTY | VIDEO CIRCUIT BOARDS AND COMPONENTS | EACH | P&P | TOTAL |
| 7 | ..... | ZNA134 Sync pulse generator PCB | £3.00 | 0.38 | ..... |
| 8 | ..... | 2.5625MHz crystal | £2.75 | 0.27 | ..... |
| 11 | ..... | Character generator PCB | £4.00 | 0.35 | ..... |
| 12 | ..... | Teletext pattern generator PCB | £3.00 | 0.35 | ..... |
| 13 | ..... | Greyscale/colour bar generator PCB | £3.00 | 0.35 | ..... |
| 14 | ..... | Colour test card PCB set | £15.00 | 0.65 | ..... |
| 15 | ..... | TBP28L22 circle program PROM | £10.00 | 0.27 | ..... |

TOTAL GOODS THIS PAGE £.....

| STK | QTY | VIDEO CIRCUIT BOARDS & COMPONENTS | EACH | P&P | TOTAL |
|---|---|---|---|---|---|
| 16 | ..... | PAL colour coder | £6.00 | 0.38 | ..... |
| 17 | ..... | Character Colouriser PCB | £5.00 | 0.38 | ..... |
| 18 | ..... | TEA2000 colour coder PCB | £2.00 | 0.27 | ..... |
| 19 | ..... | Video filter PCB | £1.00 | 0.27 | ..... |
| 20 | ..... | Vision processing amplifier PCB | £4.00 | 0.38 | ..... |
| 21 | ..... | Vision switcher matrix PCB | £4.00 | 0.38 | ..... |
| 22 | ..... | Vision switcher logic PCB | £4.00 | 0.38 | ..... |
| 23 | ..... | Vision mix effects amplifier PCB | £4.00 | 0.38 | ..... |
| 24 | ..... | Wipe effect generator PCB | £3.00 | 0.38 | ..... |
| 25 | ..... | 4 Input TEA5114 vision selector PCB | £3.00 | 0.38 | ..... |
| 26 | ..... | Video level indicator PCB | £5.00 | 0.38 | ..... |
| 27 | ..... | A-D and D-A converter PCB | £5.00 | 0.38 | ..... |
| 28 | ..... | Digital video read address PCB | £5.00 | 0.38 | ..... |
| 29 | ..... | Digital video write address PCB | £5.00 | 0.38 | ..... |
| 30 | ..... | Digital video RAM PCB | £4.00 | 0.38 | ..... |
| 31 | ..... | Digital video backplane PCB | £6.00 | 0.38 | ..... |
| 32 | ..... | UVC3130-08 A-D & D-A IC | £40.00 | 0.27 | ..... |
| 33 | ..... | Spectrum user port PC | £3.00 | 0.38 | ..... |
| 34 | ..... | Spectrum PROM blower PCB | £3.00 | 0.38 | ..... |
| 35 | ..... | FLEX PROM blower PCB | £5.00 | 0.38 | ..... |
| 40 | ..... | I²C CPU PCB | £7.50 | 0.38 | ..... |
| 41 | ..... | I²C VDU PCB | £7.50 | 0.38 | ..... |
| 42 | ..... | 13.875 MHz Crystal | £4.00 | 0.27 | ..... |
| 43 | ..... | SAA5231 genlock IC | £6.50 | 0.27 | ..... |
| 44 | ..... | SAA5243PE Teletext IC | £11.50 | 0.27 | ..... |
| 45 | ..... | PCF8583 Clock IC | £6.00 | 0.27 | ..... |
| 10 | ..... | I²C Relay PCB | £5.50 | 0.38 | ..... |
| 9 | ..... | PCF8574A Input Expander IC | £4.00 | 0.38 | ..... |

TOTAL GOODS THIS PAGE £.....

| STK | QTY | RX, TX AND SSTV PCBS & COMPONENTS | EACH | P&P | TOTAL |
|---|---|---|---|---|---|
| 36 | ..... | I²C Video Switch PCB | £7.50 | 0.38 | ..... |
| 37 | ..... | GX414 Video Switch IC | £5.00 | 0.27 | ..... |
| 38 | ..... | PCF8574P Input Expander IC | £3.00 | 0.27 | ..... |
| 39 | ..... | LM1881N Sync Separator IC | £3.00 | 0.27 | ..... |
| 46 | ..... | 4 rail power supplies PCB | £3.00 | 0.38 | ..... |
| 48 | ..... | 13.14 MHz Crystal ** | £5.00 | 0.27 | ..... |
| 49 | ..... | 70cm DSB Transmitter PCB | £3.00 | 0.35 | ..... |
| 50 | ..... | 100.875 MHz Crystal | £7.00 | 0.27 | ..... |
| 51 | ..... | ATV Up-Converter PCB | £2.25 | 0.27 | ..... |
| 52 | ..... | Amateur Television AM IF PCB | £1.50 | 0.27 | ..... |
| 53 | ..... | FM TV Demodulator PCB | £3.00 | 0.35 | ..... |
| 54 | ..... | 24cm GaAsFET Converter PCB | £3.50 | 0.35 | ..... |
| 55 | ..... | Gunn Diode Modulator PCB | £2.50 | 0.27 | ..... |
| 56 | ..... | 10 GHz Head Unit PCB | £2.50 | 0.27 | ..... |
| 57 | ..... | Tunable IF PCB | £2.50 | 0.27 | ..... |
| 58 | ..... | 6 MHz Audio Subcarrier Gen PCB | £1.50 | 0.27 | ..... |
| 59 | ..... | G3WCY SSTV Scan Converter PCB set | £10.00 | 0.65 | ..... |
| 60 | ..... | G4ENA Colour etc. SSTV mods PCB set | £5.00 | 0.35 | ..... |
| 61 | ..... | G4ENA SSTV Transmit mod to 'WCY PCB | £6.00 | 0.35 | ..... |
| 62 | ..... | G4ENA Auxiliary PCB | £2.00 | 0.27 | ..... |
| 63 | ..... | SSTV Sync and Pattern gen PCB | £3.00 | 0.35 | ..... |
| 64 | ..... | SSTV SPG/Pattern 2732 EPROM | £12.00 | 0.27 | ..... |
| 65 | ..... | MC1445 Gated Video Amplifier IC | £3.50 | 0.27 | ..... |
| 66 | ..... | TEA2014 Video Switch IC | £1.10 | 0.27 | ..... |
| 67 | ..... | TEA5114 Video Switch IC | £1.50 | 0.27 | ..... |
| 68 | ..... | 4.433618 MHz Crystal | £2.75 | 0.27 | ..... |

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| STK | QTY | STATIONERY AND STATION ACCESSORIES | EACH | P&P | TOTAL |
|---|---|---|---|---|---|
| 69 | ..... | 5 MHz Crystal | £2.75 | 0.25 | ..... |
| 70 | ..... | 6.0 MHz Crystal | £1.50 | 0.27 | ..... |
| 71 | ..... | BATC diamond button-hole badge | £0.40 | 0.27 | ..... |
| 72 | ..... | BATC round lapel badge | £0.50 | 0.27 | ..... |
| 73 | ..... | BATC blue diamond clutch-pin badge | £1.50 | 0.27 | ..... |
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| 75 | ..... | BATC round equipment stickers | £0.15 | 0.27 | ..... |
| 76 | ..... | BATC square windscreen stickers | £0.10 | 0.27 | ..... |
| 77 | ..... | Set of Ferrite cores for VSB Tx | £0.20 | 0.27 | ..... |
| | ZERO RATE ITEMS | | EACH | P&P | TOTAL |
| 78 | ..... | BATC Test Card | £0.50 | 0.35 | ..... |
| 79 | ..... | BATC Reporting Chart | £0.12 | 0.35 | ..... |

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# WHO TO WRITE TO

Members of the BATC committee are available to help and advise club members on any ATV related subject. Remember that all such work is done in spare time, so please try to keep such queries to a minimum.

CQ-TV MAGAZINE - Anything destined for publication in CQ-TV magazine or forthcoming BATC publications. Articles; review items; advertisements; other material. EDITOR: MIKE WOODING G6IQM, 5 Ware Orchard, Barby, Nr. Rugby CV23 8UF Tel: (0788) 890365 (Answerphone). FAX: 0788 890365.

CLUB AFFAIRS - video tape library; technical queries, especially related to handbook projects: TREVOR BROWN G8CJS, 14 Stairfoot Close, Adel, Leeds LS16 8JR. Tel: (0532) 670115

MEMBERS SERVICES - PCB's; components; camera tubes; accessories etc. (other than publications); queries related to such supplies: PETER DELANEY G8KZG, 6 East View Close, Wargrave, Berkshire RG10 8BJ. Tel: (0734) 403121

MEMBERSHIP - Anything to do with membership including new applications; queries and information about new and existing membership, non-receipt of CQ-TV; subscriptions; membership records; data protection: DAVE LAWTON G0ANO, 'Grenehurst', Pinewood Road, High Wycombe, Bucks HP12 4DD: Tel: (0494) 28899

GENERAL CLUB CORESPONDENCE & LIBRARY - Any general club business. Queries relating to the borrowing or donation of written material. PAUL MARSHALL G8MJW, Fern House, Church Road, Harby, Nottinghamshire NG23 7ED: Tel: (0522) 703348

PUBLICATIONS - Anything related to the supply of BATC publications. IAN PAWSON G8IQU, 14 Lilac Avenue, Leicester LE5 1FN Tel: (0533) 769425

EXHIBITIONS AND RALLIES - also arrangements and information about lectures and talks to clubs; demonstrations etc: PAUL MARSHALL (address as above).

CLUB LIAISON - and anything of a 'political' nature; co-ordination of ATV repeater licences: GRAHAM SHIRVILLE G3VZV, The Hill Farm, Potsgrove, Milton Keynes, Bucks MK17 9HF. Tel: (0525) 290 343

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TVI & RADIO INTERFERENCE - problems of this nature to: LES ROBOTHAM G8KLH, 38 Ennerdale Avenue, Stanmore, Middx. HA7 2LD. Tel:(01 907) 4219 (not committee).

CONTESTS - RICHARD GUTTRIDGE, Ivy House, Rise Road, Skirlaugh, Hull, North Humberside, HU11 5BH. Tel: 0964 562498.

CQ-TV AWARDS - BOB WEBB G8VBA, 78 Station Road, Rolleston-on-Dove, Burton-on-Trent, Staffs, DE13 9AB. Tel: 0283 814582

Where possible it is better to telephone your query rather than write. Please do not call at unsocial hours. As a guide, try to call between 6.30 and 9.30pm evenings and not before 11am at weekends.

# CONTEST NEWS

**Bob Platts G8OZP**

## INTERNATIONAL 91 70cm SECTION

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| PE1HXD | 15254 | 48 | F6IFR | 495 |
| FE6IFR | 15239 | 39 | PE1HXD | 495 |
| G1COI/P | 13285 | 28 | PE1HXD | 481 |
| DL9OI | 11972 | 24 | PA3BJC | 349 |
| FE3XY | 11620 | 43 | PA0ERW | 394 |
| FE8MM | 11522 | 43 | PA0ERW | 467 |
| GW7ATG/P | 9851 | 48 | G1COI/P | 346 |
| G7ATV/P | 8800 | 33 | F6IFR | 341 |
| PA3BJC | 8391 | 30 | DL9OI | 351 |
| G8MNY | 6870 | 31 | F6IFR | 273 |
| PA3FMZ | 6824 | 31 | GICOI/P | 461 |
| PE1LZZ | 6717 | 24 | G1COI/P | 298 |
| PA3DLS | 6608 | 43 | G1COI/P | 310 |
| ON1WW | 6382 | 30 | G1COI/P | 363 |
| G3NNG/P | 6355 | 28 | ON4YZ | 450 |
| FD1MQB | 6136 | 27 | FC1AHH | 347 |
| PA0ERW | 5788 | 27 | F1YX | 396 |
| ON5VL | 5717 | 26 | G1COI/P | 382 |
| ON6AJ | 5427 | 31 | G1COI/P | 334 |
| ON4YZ | 5381 | 34 | G3NNG/P | 450 |
| FC1AHH | 5341 | 16 | FE3YX | 385 |
| FC1DUJ | 5300 | 20 | FC1BPO | 299 |
| ON5ID | 5227 | 28 | FD1MQB | 274 |
| FC8ESA/P | 5046 | 20 | G7ATV/P | 324 |
| ON7MB | 4926 | 26 | PE1HXD | 353 |
| EA3MM/P | 4673 | 15 | F2RI/P | 381 |
| FC1FDG/P | 4662 | 19 | EA3MM/P | 271 |
| DL0PT | 4392 | 25 | DL3NAE | 233 |
| G8EQZ/P | 4358 | 17 | F6IFR | 481 |
| ON4YG | 4300 | 27 | PE1HXD | 346 |
| PI4VAD | 4282 | 24 | G1COI/P | 324 |
| DH8YAL | 3682 | 21 | ON4YZ | 229 |
| ON5MO | 3527 | 21 | PE1HXD | 338 |
| FE6CMB/P | 3454 | 25 | FE8MM | 395 |
| PA3CVM | 3010 | 20 | PA3BJC | 259 |
| FE5BV | 3003 | 13 | FC1BPS | 262 |
| PA3BOJ | 2952 | 21 | G1COI/P | 354 |
| FE2FD/P | 2578 | 8 | FC1BPO | 338 |
| ON1ANK | 2405 | 17 | PA3BJC | 233 |
| G6HMS | 2389 | 14 | G7ATV/P | 253 |
| G4AGE | 2380 | 15 | G7ATV/P | 236 |
| PA2ENG | 1992 | 13 | DL9OI | 202 |
| G0IMP | 1984 | 10 | G7ATV | 253 |
| DL6SL | 1948 | 13 | DL0PT | 112 |
| FC1DXP | 1828 | 9 | FE2FD/P | 248 |
| F21GTP | 1548 | 6 | FC1BPS | 240 |
| FE6IQG | 1509 | 6 | FC1AHH | 320 |
| G7AVU | 1498 | 12 | G7ATV/P | 267 |
| FC1LWN | 1376 | 16 | ON5ID | 195 |
| G8VOI/P | 1322 | 7 | F6IFR | 224 |
| FC1ESL/P | 1297 | 8 | EA3MM | 285 |
| PA3FNO | 1281 | 10 | PE1HXD | 161 |
| FF6KFA | 1216 | 14 | FE6IFR | 115 |
| PE1LRS | 1148 | 6 | PE1KRU | 223 |
| OE5XRL | 1058 | 11 | OE5MG | 65 |
| G6WLM | 1047 | 8 | G8EQZ/P | 175 |
| DH8NAS/P | 1016 | 3 | DC7BW | 288 |
| FC1DBN/P | 962 | 6 | FE8MM | 213 |
| DD7SB | 920 | 4 | DL0PT | 139 |
| FF6KEV | 904 | 12 | FC1DUJ | 192 |
| HB9AFO/P | 880 | 5 | F1FY/P | 288 |
| FC1FKO | 757 | 8 | FE9FT | 197 |
| DG4BAQ | 756 | 2 | PA3FMZ | 203 |
| DB1MJ | 408 | 3 | DL0PT | 91 |
| FE6AQU/P | 376 | 3 | FE3YX | 104 |
| FC1DSO | 361 | 7 | FE8MM | 60 |
| DK1JU | 186 | 2 | DL0PT | 87 |
| EA3ESL | 168 | 2 | EA3MM/P | 130 |
| DG2YGZ | 128 | 4 | DL3EH | 19 |
| OK1KWN/P | 72 | 1 | DH8NAS/P | 36 |
| EA3WN | 72 | 2 | EA3RB | 36 |
| EA3RB | 72 | 1 | EA3WN | 36 |
| ON6BM | 59 | 2 | PA0BOS | 37 |

## INTERNATIONAL 91 70cm SECTION (cont.)

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| ON1JU | 22 | 1 | ON5VL | 11 |
| ON52E | 14 | 1 | ON5VL | 7 |
| DG7JK | 8 | 2 | DF8QB | 2 |

## INTERNATIONAL 91 70cm SECTION 2 (RECIEVE ONLY)

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| PA3DEA | 2584 | 20 | G1COI/P | 380 |
| PE1AFJ | 2441 | 19 | G1COI/P | 367 |
| PA3DZA | 1983 | 20 | PA3BJC | 204 |
| PA3ECU | 1898 | 18 | DL9OI | 237 |
| FD1LGQ | 852 | 8 | FE2RI | 212 |
| FC1OOG/P | 374 | 6 | FE8MM | 102 |

## INTERNATIONAL 91 24cm SECTION 1

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| ON/ | | | | |
| PE1KWX | 16118 | 34 | PE1LRS | 307 |
| DL2KBH | 10092 | 40 | PE1LRS | 236 |
| PA3FMZ | 9750 | 26 | PE1KWX | 218 |
| PA3DLS | 9687 | 33 | PE1MQC | 213 |
| PE1LRS | 8276 | 21 | PE1KWX | 307 |
| G7ATV/P | 8212 | 25 | GW7ATG | 201 |
| ON6AJ | 6962 | 23 | PE1MQC | 254 |
| FE8MM | 6295 | 13 | ON4YZ | 245 |
| PA0BOJ | 6208 | 18 | PE1MQC | 200 |
| PA3DEE | 5676 | 20 | PE1KWX | 296 |
| PE1MQC | 4946 | 17 | PE1KWX | 303 |
| PA2ENG | 4060 | 15 | PA3CQZ | 140 |
| PA0ERW | 3512 | 14 | PE1LRS | 202 |
| FE3YX | 3339 | 10 | FE2FD/P | 194 |
| PA3CVM | 3074 | 13 | PA3FMZ | 161 |
| ON1WW | 3016 | 16 | PE1LZZ | 113 |
| ON5ID | 2986 | 10 | F8MM | 217 |
| DL0RU | 2844 | 23 | PE1DWQ | 135 |
| G8NNG/P | 2784 | 11 | GW7ATG | 198 |

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| FC1FDG/P | 2650 | 5 | FE2RI/P | 136 |
| GW7ATG/P | 2542 | 7 | G7ATV/P | 201 |
| G8EQZ/P | 2496 | 9 | GW7ATG | 185 |
| FC1ESA/P | 2363 | 6 | PE1LZZ | 177 |
| G8MNY/P | 2312 | 10 | G7ATV/P | 130 |
| D28YAL | 2306 | 19 | PE1KWX | 156 |
| FE2FD/P | 2163 | 4 | FE8MM | 225 |
| ON5VL | 2096 | 8 | PA3DLS | 160 |
| HB9AFO/P | 2096 | 6 | F1FY/P | 288 |
| FE1CMB | 1885 | 5 | DB2VY | 107 |
| ON4YZ | 1620 | 15 | F8MM | 245 |
| G8VOI/P | 1612 | 7 | G7ATV/P | 121 |
| FC1DXP | 1405 | 5 | FC1GTX | 223 |
| ON7MB | 1130 | 7 | F9FT | 126 |
| OE5PON | 942 | 9 | OE5SDM | 80 |
| PE1HNG | 922 | 6 | ON6AJ | 150 |
| DL2HAP | 900 | 8 | DL2CI | 60 |
| PI4VAD | 750 | 7 | PE1KWX | 169 |
| ON5MO | 725 | 7 | PA3DLS | 145 |
| PE1JAM | 716 | 8 | PA3FMZ | 74 |
| PA3BJC | 703 | 6 | PA3FMZ | 107 |
| FD1MQB | 623 | 3 | FF6KEV | 62 |
| FE5BV | 611 | 3 | FC1DXP | 91 |
| OE5XRL | 564 | 4 | DE5PON | 54 |
| EA3WN | 548 | 7 | EA3GAW | 38 |
| DL6SL | 408 | 4 | DL2MBE | 52 |
| G4AGE | 396 | 3 | G8EQZ/P | 84 |
| FF6KEV | 357 | 3 | FD1MQB | 62 |
| EA3RB | 348 | 4 | EA3BJG | 46 |
| EA3MM/P | 308 | 1 | EA3BJG | 77 |
| G7AVU | 224 | 1 | G8EQZ/P | 56 |
| G6WLM | 198 | 3 | G8MNY/P | 91 |
| PE1JMZ | 176 | 3 | PE1LZZ | 24 |
| ON6BM | 176 | 3 | PA0BOS | 37 |
| EA2ESL | 96 | 2 | EA3WN | 38 |
| FC1DBN/P | 88 | 1 | FC1ESA/P | 22 |
| DG2YDZ | 88 | 1 | DL0RU | 22 |
| DB1MJ | 76 | 3 | DC5SL | 8 |
| DC5SL | 56 | 2 | DB1MJ | 8 |
| DL3MFY | 44 | 2 | DC5SL | 6 |
| ON5EE | 28 | 1 | ON5VL | 7 |
| DK1JU | 24 | 1 | DB1MJ | 6 |

## INTERNATIONAL 91 24cm SECTION 2 (RECIEVE ONLY)

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| PA32ZA | 1632 | 10 | PE1LRS | 195 |
| PE1LZZ | 1624 | 10 | PE1KWX | 178 |

## INTERNATIONAL 91 13cm SECTION 1

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| EA3WN | 720 | 2 | EA3RB | 36 |
| PE1MQC | 565 | 2 | PA3DEE | 39 |
| DL0RU | 510 | 9 | DH8YAL | 22 |
| DL8YAL | 420 | 4 | DL0RU | 22 |
| PA3DEE | 400 | 3 | PE1MQC | 39 |
| EA3RB | 360 | 1 | EA3WN | 36 |
| DB1MJ | 210 | 3 | DG8MDR | 8 |
| PE1LRS | 185 | 2 | PE1MQC | 35 |
| ON5PON | 110 | 1 | OE5CMM | 22 |
| DC5SL | 40 | 1 | DB1MJ | 8 |
| PE1CYU | 30 | 1 | PA3CRX | 6 |
| PA3CRX | 30 | 1 | PE1CYU | 6 |
| DL3MFY | 25 | 1 | DB1MJ | 5 |

## INTERNATIONAL 91 3cm SECTION 1

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| EA3MM/P | 770 | 1 | EA3ESL | 77 |
| EA3ESL | 770 | 1 | EA3MM/P | 77 |
| DB1MJ | 60 | 1 | DK1JU | 6 |
| DK1JU | 60 | 1 | DB1MJ | 6 |

This year's Autumn Vision again proved a fairly quiet event though the Telford group managed to find plenty of stations from thier Welsh porable location. Once again congratulations got to Dave, John and Pete.

Clive and Richard again put an exelent signal out from Humberside to gain a worthy first place on the 24CMs band. They had hoped for

better results on 70 but gremlins in the equipment put paid to thier high hopes.

Craig EI3FW mananaged to cure his gremlin of previous contests. A P3 both ways over the 195Km path to the Telford group in Wales was a fine achievement with just 17 Watts and a single antenna.

## AUTUMN VISION 70cm

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| GW7ATG/P | 5134 | 30 | G4WGZ | 284 |
| G8MNY | 2108 | 17 | G8EQZ/P | 286 |
| G8EQZ/P | 2006 | 10 | G8MNY | 286 |
| EI7FW | 837 | 5 | GW7ATG | 195 |
| G4WGZ | 834 | 6 | G8EQZ/P | 286 |

## AUTUMN VISION 24cm

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| G4EQZ/P | 1317 | 9 | GW4ATG | 185 |
| GW4ATG/P | 1069 | 7 | G8EQZ/P | 185 |
| G8MNY | 346 | 5 | G3NNG | 114 |
| G4WGZ | 14 | 1 | G8MNY | 7 |

## AUTUMN VISION 2M SSTV

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| G7HAL | 199 | 2 | GW0HWK | 71 |

Richard Guttridge has offerd to take over as contest mamager for the club and I am going to devote my time to other things. Richard has some good new ideas that wishes to implement and as I have been, I know he would be pleased to recieve comments from you all.

*As Bob ststed earlier, he is leaving the post of BATC Contest Manager to pursue other activities within the BATC and ATV. I would like to thank him on behalf of the committee for his 'term in office' and would like to welcome Richard Guttridge G4YTV as the new Contest Manager ... Mike*

**Richard Guttridge G4YTV**

## WINTER CUMULATIVE 1992 REPORT

I received eighteen entries in total for this years contest, ten logs for 70cm and eight logs for 24cm. 295 contacts were made on the logs submitted and most of these covered the second, third and fourth sessions on 70cm, although 24cm sessions were more variable. The third day of the contest proved to be the highest scoring session for most people.

I was very interested in John G8MNY's comment on the lack of activity in the London and Home Counties area. It was almost nil. Come on you Men of Kent, where are you? Also the other enclaves of ATV'ers around the country, we know your out there somewhere as you have mighty fine repeaters up and running. I hope you can make into the shack for some of the other contests in the year. John G8MNY and Colin (Des) G3NNG provided most of us with our best DX, congratulations on the effort, you made a lot of people happy North of Watford.

I think most of you will have looked at the results table before reading this waffle, so a round of applause for Colin (Des) G3NNG for sweeping all before him on both 70 and 24cm, well done, you showed us how it is done!

Colin ran 400 watts peak sync into a 21-element Tonna with a nice hot receive setup to match it. The logs revealed that he didn't miss much. Colin you can be sure that the rest of us will be after you. Watch this space!

I would like some feedback on the following point so that it can be put into the rules. How many points should a station get if he works another station in the same square as himself? I think it should 3 points, as 4 points can be in the next square. Your comments please.

During the Winter Cumulatives I had a two way with Ray G4AGE 96km away on 24cm. He was running 50 milliwatts and I was the wrong side of a 500 foot hill called The Yorkshire Wolds. MAGIC! I think Ray was pretty pleased as well. Next contest can you tell me about the one contact during the contest that gave you the most pleasure plus any other printable comments.

Hope to see many of you at Harlaxton, if not then on the next contest. Many thanks to all who sent logs in to make it a contest. Log sheets, Entry forms and comments to **Richard Guttridge G4YTV, Ivy House, Rise Road, Skirlaugh, Hull. 0964-562498.**

## 70cm WINTER CUMULATIVE RESULTS

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| G3NNG | 9023 | 33 | G4YTV | 261 |
| G4YTV | 5334 | 31 | G8MNY | 279 |
| G8MNY | 5012 | 26 | G4YTV | 279 |
| G4ZJY | 3730 | 32 | G8MNY | 222 |
| G6HMS | 3169 | 22 | G8MNY | 208 |
| G4AGE | 3046 | 22 | G8MNY | 225 |
| G7AVU | 2881 | 22 | G3NNG | 203 |
| G0IMP | 2318 | 22 | G3NNG | 184 |
| G4WGZ | 768 | 7 | G3NNG | 119 |
| G6WLM | 756 | 13 | G8MNY | 154 |

**24cm WINTER CUMULATIVE RESULTS**

| Callsign | Points | QSO's | Best DX | @Km |
|---|---|---|---|---|
| G3NNG | 2321 | 14 | G4WGZ | 119 |
| G8MNY | 1062 | 10 | G3NNG | 114 |
| G4YTV | 908 | 9 | G4AGE | 96 |
| G4ZJY | 732 | 14 | G3NNG | 129 |
| G4AGE | 524 | 5 | G4ZJY | 99 |
| G4WGZ | 467 | 7 | G3NNG | 119 |
| G6WLM | 58 | 5 | G0HOV | 12 |
| G7AVU | 38 | 1 | G4AGE | 38 |

# CONTEST CALENDAR

**THE DANISH SSTV CONTEST**

Saturday 9th to Sunday 10th May

0000 GMT Sat to 2359 GMT Sun

Slow Scan All Bands

Rules etc. from BATC Contest Manager

**MAYDAY MICROWAVE**

Sunday 10th May

0001 - 2359 GMT

FSTV 24cm and above

Entries to be received by 25th May

**SUMMER FUN JOINT EUROPEAN**

Saturday 13th to Sunday 14th June

1400 GMT Sat to 1400 GMT Sun

SSTV and FSTV all bands

Entries to be received by 29th June

***NEW CONTEST*** ****** SUMMER CUMULATIVE ****** ***NEW CONTEST***

Tuesday 7th, Wednesday 15th, Thursday23rd and Friday 31st July

1900 GMT to 2359 GMT each session

SSTV and FSTV all bands

Entries to be received by 17th August

# CIRCUIT NOTEBOOK No.46

**John Lawrence GW3JGA**

CQ-TV has probably printed more designs for colour bar generators than any other circuit. The circuit described here makes use of two of the five pattern outputs from the ZNA234 sync pulse and pattern generator IC. This device is used in the BATC Dual-Standard Pattern Generator (BATC ATV Compendium, page-5).

The circuit, shown in Fig.1, produces standard colour bars with an optional horizontal bar into which text can be inserted for messages, call sign, etc. The outputs are suitable for feeding into a TEA2000 coder. e.g: the BATC Dual-Standard Coder (BATC ATV Compendium. page-34).

The 'vertical line' output form IC1 is used to clock a binary up-counter, (the upper half of IC2) producing outputs from QB, QC and QD. These three signals are blanked and inverted by IC3 and fed to IC4, where other signals can be added, producing blanked blue, red and green output signals for feeding to a coder.

The ZNA234 generates slightly more 'vertical line' clock pulses than are needed for one picture line. As a result, the up-counter runs through its full count and generates a narrow vertical white line at the extreme right of the picture, as shown in Fig.2.

The 'horizontal line' output from IC1 is used to clock another binary up-counter, (the lower half of IC2) to produce a horizontal bar signal which can be inserted (blanked) into the colour bar signals. This black horizontal bar is available for the insertion of characters, call sign, etc., from a caption generator such as: BATC Electronic Caption Writer (BATC Micro and Television Projects, page-7).

The 'vertical line' up-counter is cleared at the end of each line by inverted mixed blanking and the 'horizontal line' up-counter is cleared at the end of each field by inverted field blanking, which is separated out from the mixed blanking by R1 and C2.

The first part of the circuit, which includes IC1, can be built on the printed circuit board 'SPG, Greyscale, Character Generator', which is available from Members' Services. The remainder of the circuit containing IC2, IC3 and IC4 may be built on Vero board.

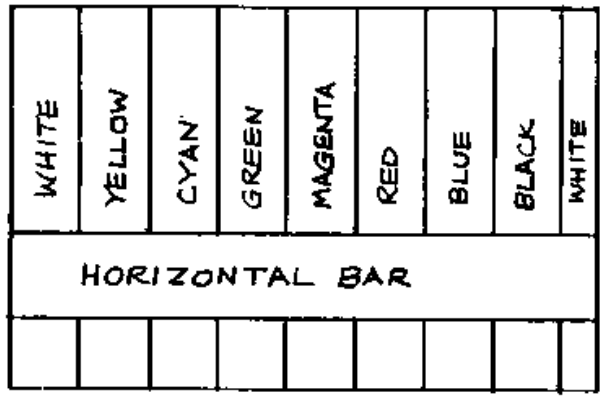



**Fig.2: The generated Colour Bar pattern**

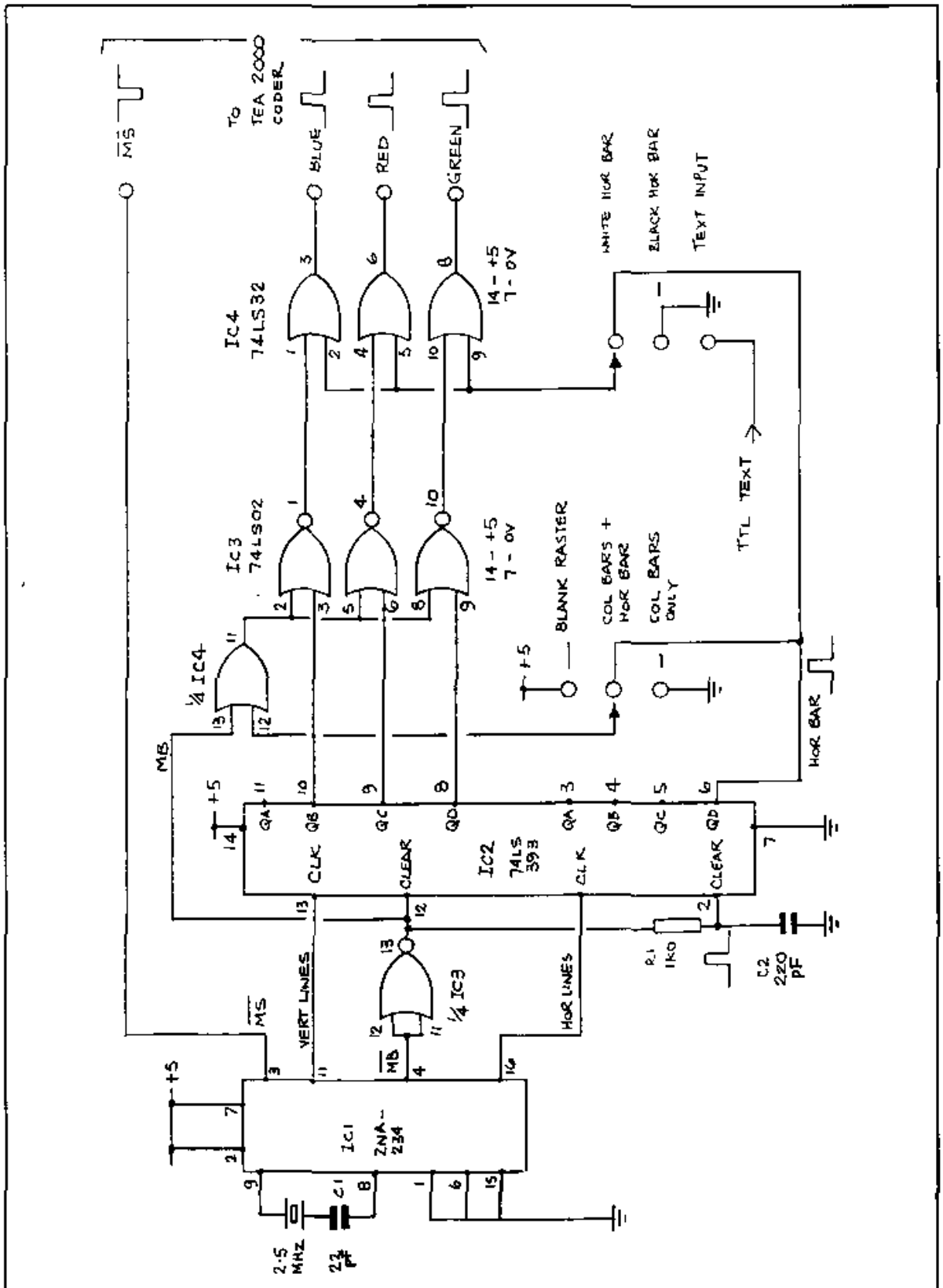



**Fig.1: Circuit Diagram of the Colour Bar Generator**

# REPEATER GROUP AFFILIATIONS

**Affiliated Repeater Groups**

| Repeater | Channel | QRA | Location | Contact | Telephone |
|---|---|---|---|---|---|
| GB3ET | RMT2 | IO93EO | Emley Moor | B.Keedy G6LIC | 0924 822605 |
| GB3GT | RMT2 | IO75UV | Glasgow | A.Beale GM1FML | 041 445 3060 |
| GB3HV | RMT3 | IO91OO | High Wycombe | M.Sanders G8LES | 042063859 |
| GB3KT* | RMT3 | | Hoo Peninsula | B.Jenkins G4CZJ | 0634 253850 |
| GB3RT | RMT3 | IO92CJ | Coventry | S.Simmonds G6LWM | |
| GB3TG | RT103 | IO91PX | Milton Keynes | D.McQue G4NJU | 0903 378 277 |
| GB3TN | RT2 | JO02KS | N.Norfolk | M.Farnsworth G4WVU | |
| GB3TV | RMT2 | IO91RU | Dunstable | D.C.Asquith G4ENB | 0582 27907 |
| GB3UD | RMT2 | IO83VC | Stoke-on-Trent | T.Burndred G0KBI | 0782 2886 |
| GB3VI | RMT1 | | Hastings | E.C.Vast | 0424 424845 |
| GB3VR | RMT2 | IO90WT | Brighton | D.Stewart G4HSY | 0903 212373 |
| GB3ZZ | RT2 | IO81RM | Bristol | S.O'sullivan G8VPG | 0225 873098 |

* Proposed RT103 = o/p 10.15GHz. i/p 10.25GHz.

The Home Counties ATV Group have said that they welcome members and guests at their meetings which are held on the 4th. Tuesday of the month at "Binfield Club, Terrace Road, Binfield, Berks. Tel. 0420 68359 for more details.

All of the repeater groups have said that they welcome visitors and guests at their meetings and reception reports are also most welcome.

BATC contact B.Summers G8GQS 081 998 4739

# BITS FROM YOUR COMMITTEE

**Brian Summers G8GQS**
**Honorary Treasurer**

## ENCLOSURES & THINGS

In this CQ-TV you will have found some BATC logos and one of the new application forms.

The logo stickers have a clear plastic laminated on top of the printing, so they should be hard wearing. If you want any more please order them from Members' Services, 23p per sheet + 30p post, or post free with other items.

The New Application form is the first step in our recruitment campaign! and we ask that you pass it to a friend or colleague who wishes to join. The form has been designed to separate and fold to form a reply paid envelope. Please note that you must attach a postage stamp if you are outside the UK postal area. Another innovation is the Visa/ Mastercard payment facility, but you can still pay by any of the other methods listed, re-enforcing the glued edges with sticky tape if you wish.

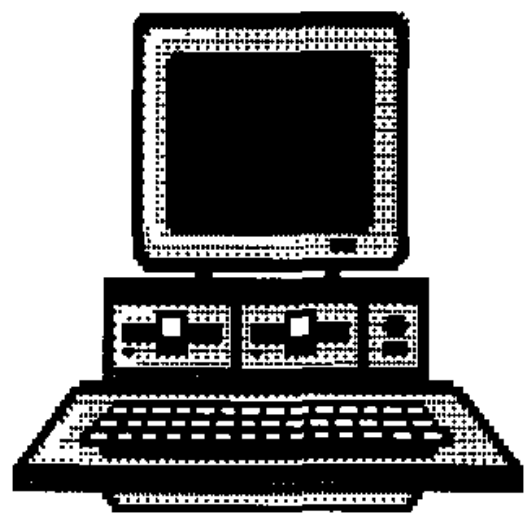
Please note that the Visa/Mastercard payment system is for new subscriptions ONLY. At present Members services and Publications have no facilities for dealing with credit card orders. Your club is run by volunteers who have private lives and have to go to work and eat etc. So please do **NOT** ring up with your card number, the chances are that no one will be in...

As an experiment, members who's subscriptions were due at the beginning of this year were sent a renewal notice and a reply paid envelope. A questionnaire was also enclosed and much information was gathered from the replies. I shall be publishing an analysis of the responses in a later CQ-TV. The reply paid envelope produce a number of questions about its cost effectiveness. Whilst no figures are available to prove its effectiveness, more members have renewed promptly so a smaller number of follow up letters need to be sent out.

Over the years the BATC's list of complimentary CQ-TVs has become too big. So as part of the subscription drive some of the people receiving free CQ-TVs have been asked to join as ordinary members. The remaining complimentary copies are mainly exchange copies with other organisations and ATV Clubs around the world.

Other Copies were being sent to Honorary members, Life members and past Presidents. These members will continue to receive their CQ-TVs and have now been given a special entry into the database to reflect their status.

B.Summers Hon. Treasurer 1 March 1992



**Dave Lawton G0ANO**
**Membership Secretary**

## Notes from the Membership Secretary.

As always at renewal time, many questions are raised by Members as to why things happen in a certain way. Here are the main ones which I hope to explain.

1) I've just paid my subscription but my CQ-TV label says I haven't.

Because the BATC is run by a group of volunteers spread around the country who have to fit their BATC activities around more mundane things such as working for a living it is not possible to print the mailing labels for CQ-TV, marry the magazines to the envelopes and get them into the post on the same day. It is usually around three weeks between printing address labels to the magazine reaching your door. So if you pay in between these times your address label will still show the old 'paid up year'.

2) You have not sent me a renewal, so here's my cheque anyway.

If you were not sent a renewal letter it's because you are already paid for this year . People who do send in further subscriptions are credited for future years. Check the number given before your membership number. e.g: 93-xxxxx, this would indicate you are paid up to the end of 1993.

3) Overseas Members ask why can they are not able to pay by their own personal cheques. ( That is, cheques not bearing the name of a London agent) The problem is that the charges levied by the UK banks to process these cheques is often higher than the value of the cheque. EEC Members can of course use Eurocheques made out in Pounds Sterling. However we are currently looking into the possibility of introducing the use of credit cards for Overseas Members.

4) Why do you not have Standing Orders or Direct Debit facilities.

Once we did, but the time taken to administer this was too great and the problems encountered when the subscription rate changed caused the Club so much headache we dropped their use. We still receive standing orders for one and two pounds and no amount of correspondence on my part has managed to have them cancelled.

5) A few other small points.

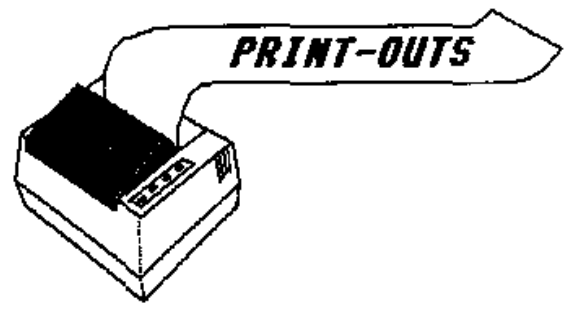
Some of you when renewing your subscription request a receipt. This takes time and of course costs money in envelopes, stamps etc. I do not mind taking the time but:

NO STAMPED ADDRESSED ENVELOPE NO RECEIPT!

If you are moving house do not forget to let me know your new address as soon as possible so that CQ-TV is sent to the correct address.

Remember when you write to any Committee member make sure it's to the correct person. The Membership Secretary only deals with membership details not Publications or Sales or Technical matters. Writing to the wrong person only delays your reply as your letter will have to be forwarded on to the appropriate person.

Dave Lawton Membership Secretary



# REMINISCENCES OF THE BATC

*The following three letters are replies in response to a circular letter sent out by Dave Lawton, Membership Secretary, and they provide an interesting insight into some of the early history of the Club, its Officers and Committee Members and CQ-TV ... Mike*

**Alwyn Stockley G3EKE/W7**
**Honorary Treasurer 1952 - 1964**

Dear Dave,

I was very interested to receive your letter when I went to clear our mail box this morning. I think that the UK and USA postal services have excelled themselves to get it to me in such short time!

I am taking this opportunity of writing to you to give you a brief review of my connection with the BATC and with Mike Barlow.

I have always been interested in TV, from the year dot, which in my case is quite a few years ago now. I used to attend the old 'RADIOLYMPIA' exhibition before WW2 and soak up every bit of useful (and otherwise) information that I could lay my hands on.

I think that it was as a result of contact with one of the stands at 'RADIOLYMPIA' that I first obtained a copy of the RSGB Amateur Radio Handbook with its 112 MC/s gear, and my interest in Ham radio developed from that time on.

It was at one of the RSGB Exhibition/ Conventions in Russell Square, London (1952?) that I first met Mike Barlow and Ivan Howard (G2DUS) on the BATC stand, and I joined the BATC there and then. My name appears in the list of new members in issue 15 (Dec 52) so I probably joined during the immediately preceding quarter.

At the behest of Mike, and with the acknowledgement of the other Officers of the Club, I was appointed Hon. Treasurer, the fact being reported in the same issue (page-2).

I continued to help in this position until somewhere about 1964, but during late 1956 Mike announced his intention of taking a position in Canada (Editorial in issue 31). In issue 32 Mike referred to my helping out with the preparation of CQ-TV, and I actually put to bed issue 35.

At that time my life was in a state of flux, and I took a teaching post in Bradford, Yorks., which made it difficult for me to continue with CQ-TV, and John Tanner (G3NDT) took over.

My duties in Bradford also made it increasingly difficult for me to maintain close contact with other committee members and finally I handed over the duties of the Hon. Treasurer to Malcolm Sparrow in 1964 (issue 53).

While in Bradford I continued to maintain an active interest in ATV until I moved to New Zealand in 1970. My Ham activities in NZ were slight for several years after moving, but gradually revived, and I currently hold ZL1TZV, which is a 'Technician' type of licence (my UK call is not recognised there - it was issued on the basis of my service training, and not on the basis

of an Amateur Radio Operator Certificate). I was just about to get on the air with a locally designed TX when an opportunity arose for me to retire gracefully a little early, and so I retired from teaching in 1988.

I am now resident here in Sisters (Oregon, USA) and although there is not much in the way of ATV activity here, I hope that one of these days I will be able to put out some sort of video signal. Currently I am working for my USA licence.

I have in my possession CQ-TV issues 1 to 4 and from 12 sequentially to the current date. I still enjoy looking them over and I read the new issues from cover to cover.

Please pass on my regards to all my friends in the Club, in particular Grant Dixon, Doug Wheele and Don Reid.

Yours sincerely

Alwyn Stockley G3EKE/W7

**Doug Wheele G3AKJ**
**C.Eng., M.I.E.E., F.B.C.S.**
**Past Honorary Secretary**

Dear Mr.Lawton,

Thank you for your letter of 9 Jan 92. I would like to confirm that I am still very interested in all BATC activities and send my thanks for keeping me in touch via CQ-TV. Your letter triggered off many early memories of the BATC early years to my XYL and I, we hope that sometime we can get down to recording these.

Briefly, Mike Barlow got in touch with me after I had moved to what was then GPO Engineer-in-Chief Offices in London, in 1950. I still can't remember how he got my name (!) but I clearly remember meeting him by St.Pauls one lunch-time when he twisted my arm to become Honorary Secretary and relive him of part of, what was up to then, his own one man load of setting up the BATC.

At the same time he had persuaded Alwyn Stockley to take over the Honorary Treasurers job. This left him more time to edit and publish CQ-TV.

During those early years we very much enjoyed demonstrating TV to the public, and in those days it was very much a 'first', so many having never seen TV. memories come back of the Dagenham Town Show displays in our own large marquee, where the Entertainments Section were so eager to have us there that they did not hesitate to let us have our own 10kW mains feed for the many kWs of light needed for my iconoscope (30 shillings form Lisle St.) camera!.

Then there were the first Convention days. By then I had an office in Holborn practically next door to the Conway Hall. With some trepidation our small Committee, as it was then, decided to splash out, I think about £25, and rent the hall for our first Convention, and even booked the small adjoining hall and kitchen.

The Caretaker, who lived above or next to the hall, was a somewhat irascible gentleman who felt he owned the hall and it took me quite a while and many visits to persuade him to accept all the apparent chaos, cables and equipment, all that was a complete mystery to him! However, we finally even got him to let us on the roof to put tarpaulins over the roof windows in the small room so that we could show films there! Note, we had no need for an aerial, on-air activity was very scarce.

I think I have some records of those early days, a few photos and some standard 8 movies stored somewhere. I will sometime sort these out and send them to you for BATC archives.

Also, if I can persuade myself to do a bit more writing about those early days, and you are interested, I will send these to you as well.

Currently, I'm glad to say that both my XYL and I are fine, in our early 70's and finding retirement still a full-time job! I am still active as G3AKJ on HF and on 2M Packet, where I run an NTS BBS, GB7AKJ, mainly for a service to all of S.Wales across the Bristol Channel.

I assemble my own PC's and now have five XT compats and one 386 AT compat. I must admit that I have not returned to amateur TV, apart from running two cameras for home security purposes.

It is very gratifying to us to see how far the BATC has progressed since those early days, when, I recollect, Mike expressed serious doubts about its continuing and his ability to continue with publication of CQ-TV (Gestetner at his Cambridge College I believe!).

We were saddened to hear that he had passed away, another link with the past has gone.

We wish you well for the future and hope that we can get down to recording our memories for the archives while we can.

73's to you all

Doug Wheele G3AKG

**R.C.Hills G3HRH**
**Past President**

Dear Mr.Lawton,

Thank you for your letter dated 9th January 1992. I am afraid that I cannot really remember when I joined the BATC. The circumstances were that while I was still a member of the Engineering Directorate of the then IBA, I accepted the honour of being invited to be President of the Club. It was my practice to pass on my copy of CQ-TV to the IBA Amateur Radio Club, so I do not have any copies on file.

Now that I am retired and am a consultant, I find myself even busier than before, with the result that even my normal amateur radio activities are curtailed virtually to zero, and the likelihood of my ever getting into practical ATV is now very remote. Although I enjoy looking through the magazine each time, I recognise that this is an expense for the Club which I could not morally justify and I think the right thing for me to do is to resign my membership.

Please understand that I only do this because I know how difficult it is for any club to keep afloat financially these days and not having the expense of printing an extra copy of CQ-TV and posting it to me each issue will go a little way towards easing that burden.

I wish the Club every future success and am proud to have been numbered among its Presidents in the past.

Yours sincerely

R.C.Hills G3HRH

# THE SAARPARABOL RECEIVER

**Barry Keedy G6LIC**

I was recently asked to carry out an air-test evaluation of the Saarparabol E-600 satellite receiver module with a view to its performance as a 23CM FM ATV receiver.

The unit is a cased satellite downconverter mounted on a professionally finished Eurocard PCB containing all the processing circuitry.

The unit is designed to work from a 13.8 volt DC supply making it ideal for portable operation. A multiturn potentiometer allows the audio subcarrier to be tuned between 5.2 and 8.3MHz.

Also fitted are three slide-switches for LNB voltage supply on/off, AFC on/off and a very useful facility to switch bandwidth to either 16 or 27MHz. Phono sockets are fitted for video, audio and baseband outputs. The entire unit measures 9'' x 4'' x 2''.

As with most units based on satellite downconverters some preamplification is desirable. However, an off-air comparison of a P3 23CM FM ATV picture, between the unit and a PACE satellite receiver, showed that the Saarparabol unit was marginally better. My Wood & Douglas receiver exhibited a P5 picture with the same signal. The addition of a single-stage preamplifier improved the picture received by the satellite receivers also to P5.

Altogether the Saarparabol is a very nice unit with only two criticisms. One is the use of a multiturn potentiometer for tuning. The other criticism is that the on-board power supply regulators are supplying a 12V rail for the unit. However, in order for the type of regulating devices used a DC supply of 15V is really required in order that they will regulate effectively, otherwise operation of the AFC or Bandwidth switches affects the tuning voltage on the down converter.

# IN RETROSPECT

**BEYOND TTL Part-2,**

**CQ-TV 157, page 38**

The software listing shown in the above article had some carriage returns in the wrong place at the start that made it difficult to follow. It should have looked like this:

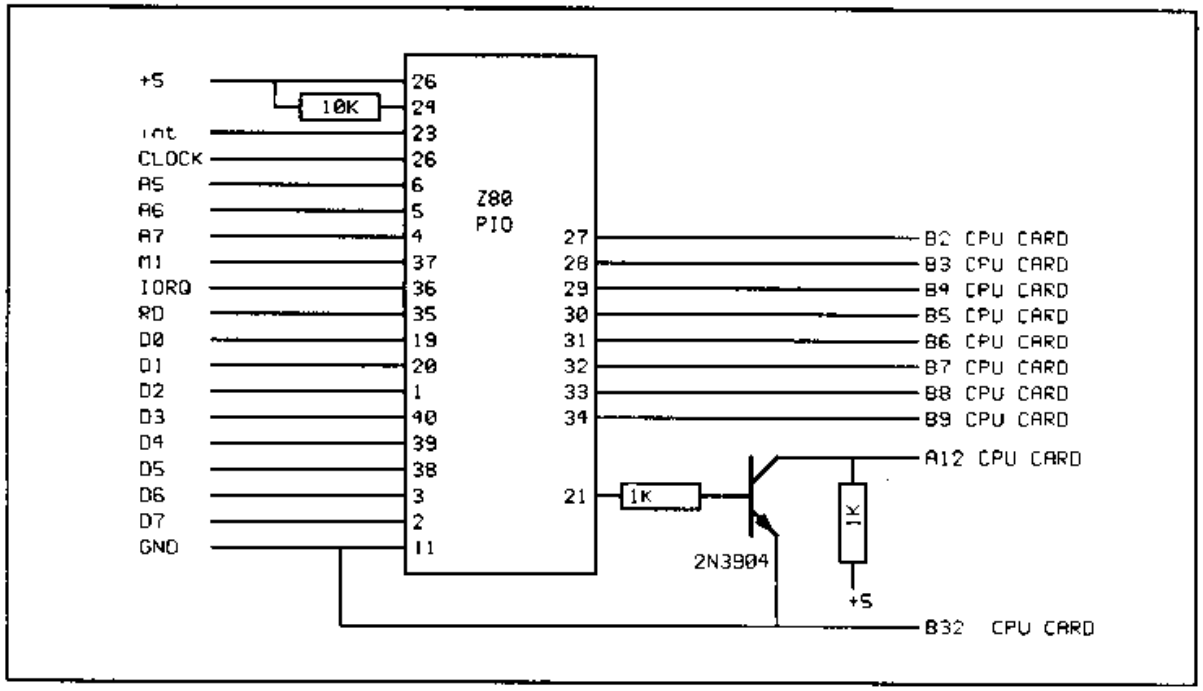
```
16      LD D,N          ;load register D with the next number i.e: 90
90
3E      LD A,N          ;load register A with the next number i.e: 80
80
26      LD H,N          ;load register H with the next number i.e: 02
02
2E      LD L,N          ;load register L with the next number i.e: 40
40
01      LD BC,NN        ;load the BC registers with the next pair of numbers i.e: 00 01
                        ;(yes this way round)
01
00
ED      OUT (C),A       ;this two number instruction means
79                      ;set the address bus to contents of BC and put the contents of the
                        ;A register on the data bus and pulse the WR and IORQ pins of
                        ;the CPU low
2D      DEC L           ;reduce the contents of register L by 1
20      JR NZ,DIS       ;did reducing the contents of L, make it zero, if not jump
                        ;backwards in the programme an amount set by the next number
                        i.e: F8
F8
3E      LD A,N          ;load A with the next number i.e: 00
00
25      DEC H           ;reduce the contents of H by 1
20      JR NZ,DIS       ;jump back unless H is zero
F1                      ;tells you how far to jump back to
15      DEC D           ;reduce D register by 1
20      JR NZ,DIS       ;jump back unless D is zero
EA                      ;tells you how far to jump back
01      LD BC           ;load BC with next pair of numbers i.e: 50 00
00
50
```

```
0B      DEC BC          ;reduce BC by 1
78      LD A,B          ;the next two instructions are necessary to test
                        ;register pair for zero due to a 8080 bug
B1      OR C
20      JR NZ,DIS       ;jump back unless the register tested is zero
FB                      ;tells you how far to jump back to
```

## USING THE 48K SPECTRUM AS AN I²C KEYBOARD

### CQ-TV 157, page 65

Unfortunately the circuit diagram of the keyboard connections for the above project was, like your Editor, not quite all there! The full circuit and conection details are shown below.




**DON'T FORGET ATV on 70cm**

**OUR BANDS ARE VALUABLE**

**USE THEM OR LOSE THEM !**

# THE SSTV STANDARD DEBATE

Roland Humphries B.Sc. G4UKL

Mike G6IQM's dissertation on a new SSTV standard in CQ-TV 156 was interesting to many people, not all of whom agree with the means, but most seem to agree on the principles. The most thoughtful and constructive to cross my path is a contribution from Allan Mathieson who says:

'When it takes a longer time to detail all the modes you can handle than it takes to send the picture - that must be the limit line!'.

Everyone I have discussed the problem with agrees with the seven 'desirable features' described by Mike. We all want a system less vulnerable to errors of tuning and QRM, and primary band plan enforcement. The system described by Allan Mathieson would meet all the criteria as follows:

- There would be no requirement for complicated hardware which would restrict the type of equipment used.
- Mono receive systems would be able to resolve a colour picture by ignoring the chrominance content.
- Line frequency for mono and colour is kept at 2Hz, allowing Fax generators to be used for sync and to maintain compatibility with existing mono standards.
- Line and frame sync pulses included for flexibility and compatibility.
- A set of tuning signals for each line, which gives inherent colour sync.
- A tuning error would cause only a change in brightness and colour saturation and a tuning error up to 400Hz could still get the DIS byte!

I would prefer a more positive DIS TX along the lines of the Amiga mode, a belt and braces approach, because I do not think that a tuning error with an extreme swing of 800Hz (i.e: plus or minus 400Hz each side of the TX frequency) will always lock on.

There are many amateurs on SSTV who use equipment without a digital tuning display and in a net there is inevitably a difference in frequency. All too often you hear 'Sorry old man, didn't get all that, missed the sync pulse', or words to that effect.

As a means of alleviating this problem I have included in the new version 40.1 of SSTV.COM a tuning programme which transmits a 1200Hz pure tone, so that all stations on the net can accurately lock on to a common frequency. Also included is a sister facility which generates a reference 1200Hz signal through the user's PC computer. All of which suggests that an optimum specification for the DIS pulse is a major factor in any new standard.

It may be an advantage to consider logic levels, '1' for 2300Hz and '0' for 1200Hz. OZ0AU suggests that this would give better detection than the existing Robot VIS, but for the reasons mentioned above I have doubts on the frequency flexibility, even with 16-bits in a 32ms block. It has one meritorious advantage though, the separation of the vertical sync from the DIS data.

You will notice that the specifications add a very low resolution mode for contests, which will not be fully resolvable on the Robot 1200C, and that there are altogether five colour and five monochrome modes. There are ten speeds, 2 seconds to 960

seconds, the latter at a Tx time of sixteen minutes, full duty cycle, is premeditated destruction of the final TX PAs.

These proposals have been submitted to the IARU in the hope that an international agreement can be reached on anew World Standard, to be known as Amateur Radio Telepictures (ART!).

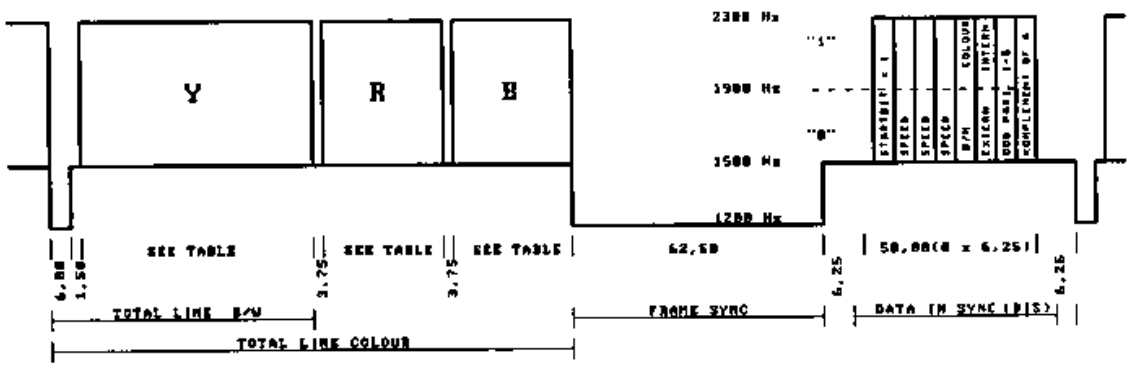



Fig. 1 BASIC TIMING DIAGRAM (all times in ms)

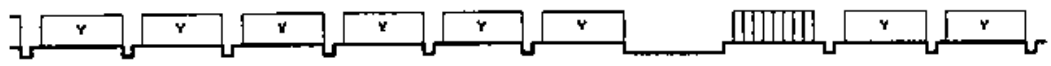



Fig. 2 PART OF B/W SIGNAL

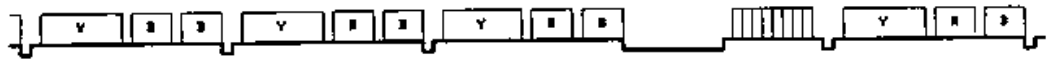



Fig. 3 PART OF COLOUR SIGNAL

Black and White

| | | | | |
|---|---|---|---|---|
| "2 sec." | "8 sec." | "30 sec." | " 2 min." | " 8 min. " |
| "4 sec." | "16 sec." | "60 sec." | " 4 min." | " 16 min." |

Colour

Low resolution. "Old" Standard. Medium res. High resolution. Very high

| Total picture time | | |
|---|---|---|
| Linenumber | Black/White | Colour |
| 60 | 1,875 sec. | 3,750 sec. |
| 120 | 7,500 sec. | 15,000 sec. |
| 240 | 30,000 sec. | 60,000 sec. |
| 480 | 120,000 sec. | 240,000 sec. |
| 960 | 480,000 sec. | 960,000 sec. |

TABEL 1 (Aspect ratio 3:4)

All times in msek.

| Speed number | 0 | 1 | 2 | 3 | 4 |
|---|---|---|---|---|---|
| Luminance (B/W) | 23,50 | 55,00 | 117,50 | 242,50 | 492,50 |
| Red og Blue (Crominance) | 11,875 | 27,50 | 58,75 | 121,50 | 246,25 |
| Total linetime Black/White | 31,50 | 62,50 | 125,00 | 250,00 | 500,00 |
| Total linetime Colour | 62,50 | 125,00 | 250,00 | 500,00 | 1000,00 |
| Number of lines | 60 | 120 | 240 | 480 | 960 |

Tabel 2

| Mutual timetable line and framesync | |
|---|---|
| Linesync | 6,00 mS |
| Front porch B/W | 1,50 mS |
| Front porch colour | 3,75 mS |
| Framesync | 62,50 mS |
| Front porch datacode | 6,25 mS |
| DIS code ( 8 x 6,25 mS ) | 50,00 mS |
| Post porch data code | 6,25 mS |

Tabel 3 . DIS code:

| Bit nr. | Function |
|---|---|
| 0 | Start bit = 1 |
| 1,2,3 | Speed and number of lines |
| 4 | 0 = B/W , 1 = Colour |
| 5 | 0 =External,1=Internal sync |
| 6 | Odd parity of bits 1-5 |
| 7 | Complement of bit 6 |

# THE SEVERSIDE BASH!

Once again it was that time of year, the fourth Severnside Fancy Dress Evening on the air, which went out to their 'ole West Country friends with thirteen members turning into the ridiculous to amuse.

To grovel to our Chairperson I have put Viv G1IXE first as the 'Naughty School Boy', tie askew, shirt out, plastered knees showing below the shorts, sucking her lolly and jargon to illustrate ... well! G1IHA Phil had two bites of the cherry, first as 'The Unemployed Snowman' and later as 'Al Jolson' ... the singing was out of this world! Along came John G4NXI with an excellent sketch entitled 'Severn-side Workshop' (no the spelling is not wrong), 'Rolling Picture' was a toilet roll draped over a TV set, just to give you a taste! G7DRU Alan became 'Father Christmas' with a difference, displaying computer graphics that were so appropriate to those that know him ... I say no more!

Our Chief Engineer Steve G8KUW was the most topical of all as 'Mr.Chips' (he makes them for a living), the centre point of a the large chip being his face, with the many pins taking up his head and shoulders against a black background.

Our Gloucestershire contingent was represented by Basil G7FEQ and friend as 'The Priest and the Devil'. Basil made a good priest, but it took time to work out who the Devil was! A new member and his daughter was G6AYY Trevor as 'Large and Little Clown' showing just how much work they had put in, and it was great to welcome our first young person to our 'show', we all hope we shall see her again.

Next came real ingenuity in a truly professional video made by G4YTH Terry, depicting the 'Micro-dot Professor' looking at his slides through a microscope and seeing 'Miss Diode' as a young lady and 'Lady Triode' as the dowager, several other examples made us all chuckle.

Paul G8YMM then filled our screens with the 'Arab Puppy Seller', the enormous nose making it difficult to smoke a pipe of peace and drink???? It was very funny. The 'Ghost' had us all puzzled, it appeared behind the flames of a fire, and took time to establish that is was Ivor G1IXF with his face covered by a mask with eyes and nose illuminated by LEDs, combined with clever camera work ... several minutes taken up with 'How did you do that?' He confessed that he was nervous of the LEDs in his eyes (brave man).

The last item was from Bryan G4YQR, looking every bit the part of 'The Artist', complete with easel, palette and brush, taking all of a minute to complete a beautiful oil painting!!! - we none of us knew he could!!

I had to apologise to Phil G1HIA for doubling as a 'Sad Snowman', we both thought of the same theme owing to the fact that we enjoy the brilliant Christmas card Severnside TV Group Show each year, with many little snowmen playing carols each with a handbell, it is excellent.

A long tale, but I have been ordered into print!!

A belated Happy New Year from the Severnside TV Group to all of you ... Jean G0AWX.

# A REMOTELY TUNED CONVERTER

*Although some of the references in this article and some of the components used are essentially from the USA market, this circuit could equally well work with any equipment anywhere in the BATC world with little, if any, modification ... Mike.*

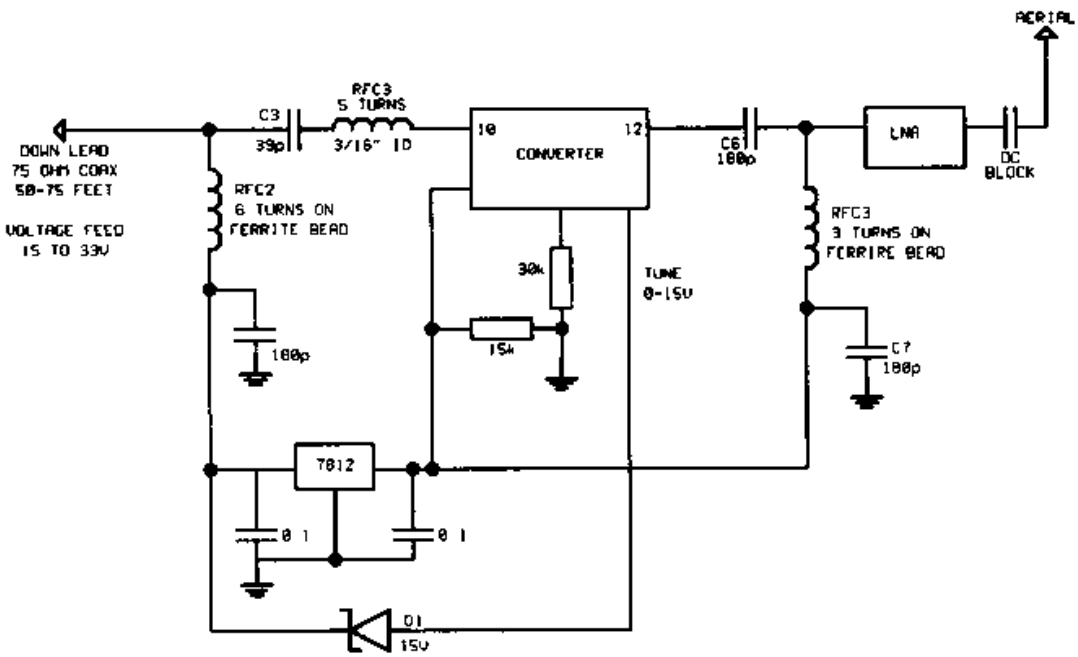
George W. Allen N1BEP

Masthead converters provide maximum signal-to-noise ratio with minimum cable loss, since the feedline cable is at the lower IF frequency and the gain block is situated near to the aerial. The circuit described here provides remote tuning for the converter and a power feed for the converter and a low noise amplifier with only one coaxial cable feed from the shack.

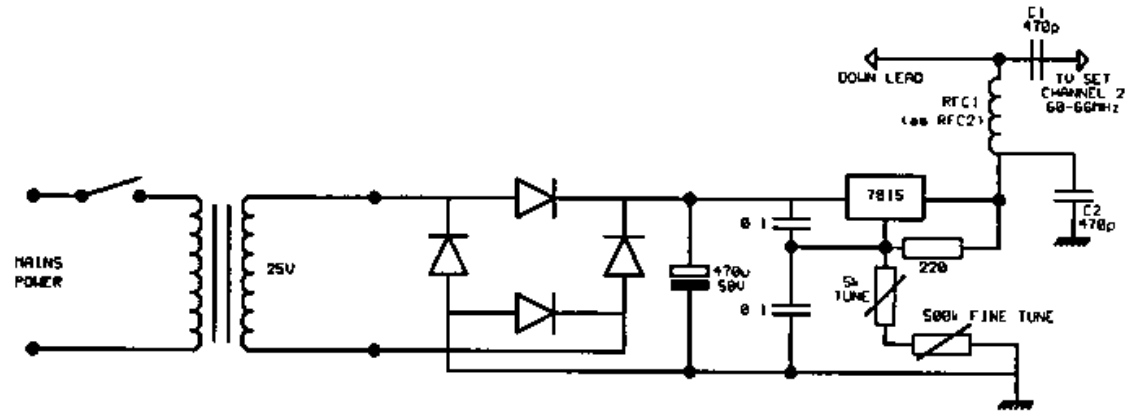
The converter used is a surplus TV UHF converter, which is tuned with a varactor voltage change. Normally it converts from US TV channels 14 to 83 (470 to 890MHz), but at very low tuning voltage will tune down to around 420MHz. The highest frequency requires a tuning voltage of approximately 22 volts. The original output was for a TV IF frequency of 41 to 47MHz, which is modified to come out on channel 2 or 3 (54 to 60MHz or 60 to 66MHz).

DC power is supplied to the cable via an RF bypass choke RFC1 and capacitor C2, with a blocking capacitor C1 on the TV feed side. The voltage regulator is adjustable from 15 volts to approximately 33 volts, to provide tuning and power. A 15 volt three-terminal regulator is used, with voltage adjustment for tuning as shown.

At the converter end voltage take-off and isolation are accomplished using choke




**Interconnection details for the remotely tuned converter**




**Power supply and tuning details**

RFC2 and capacitor C3. Matching to the 75 ohm down feeder is made using the air spaced inductor RFC2 and series capacitor C3.

The incoming DC supply is regulated by the 7812 three-terminal regulator to 12V for the converter and low noise amplifier block supplies. The 15V Zener diode D1 provides a bypass circuit for the 0 to 15 volt tuning supply, the exact maximum value of the tuning voltage will depend upon the voltage drop in the feeder cable and the exact Zener voltage of the diode.

The 12V supply for the low noise block is fed via the bypass choke RFC3 and capacitor C7 and blocking capacitor C6 prevents the DC from getting into the converter output. The capacitors and choke must be chosen for their suitability at the input frequency of 420MHz.

The amplifier used is an in-line commercial model for UHF TV, sold by Radio Shack in the US. If sufficient signal strength is available the amplifier may be omitted. Alternatively, another amplifier can be substituted. If the amplifier is located within the converter the power can be supplied to it without the DC block.

The converter used is a Mitsumi UES-A56F model. They also have units which tune 950-1350MHz, with a model number TIF-A52F.

# PRO VIDEO COMPANION

*Review*

Another titling package for the Amiga computer has appeared on the market, but this one has a combination of facilities in one package. Pro Video Companion is the first in a range of programs from a company called Visual FX.

The package has three main sections: Upward Scroller, Right to Left Scroller and Zoom Effect, and will run on a standard 512k Amiga. A lot of titling packages currently available require two disc drives and at least 1M of memory. Of course, a genlock unit is required if you wish to key the title over a background, but you can still transmit, or record, the title sequence against a black or coloured background without one.

The program was tested on an Amiga 500 with V1.2 Kickstart, 1M memory and two drives. The program self loads on boot up and displays a menu on the screen. Using the F1, F2 or F3 keys selects zoom text, upward scroll or sideways scroll respectively.

## ZOOM TEXT

Selecting this option with the F1 key allows you to enter up to sixteen pages of text comprising eight lines, each of sixteen characters. Each page may be assigned its own colour, font style, transition effects and duration. The title can be preset from any one of sixteen colours (chosen from the 4096 possible colours) plus five supplied ripple colour sequences.

The text colour needs to be chosen to be the most visible against the background picture. Some fonts have edges, but a black or coloured edge all round each character would have been useful here.

There is a choice of five zoom fonts (upper case) supplied with the program and extra fonts may be available at some future date. The display duration is chosen by moving the mouse cursor over the menu box and incrementing, or decrementing, the number of frames (shown as a Hex number) to be displayed before changing to the next page.

Six zoom effects are available. Option-4 is where the whole page zooms in and out from the centre.

The other five variations are where alternate lines zoom in from the left or right, or the whole page zooms in or out from the edge; a spiral effect; a column zoom effect, where vertical columns of letters zoom sequentially; zigzag, where, starting at one corner, the whole text zooms in or out letter by letter.

Each page of text can be separately test run with the 'TEST PATT' option from the menu, or the whole sequence can be run with the 'TEST ALL' option, which runs all sixteen pages and loops back to page 1. All the pages produced can be stored on a second disc.

## UPWARD SCROLLER

This second option on the main menu selects the upward scroller for end credits, etc. Up to 256 lines of text can be entered with automatic justification to either the left, or the centre of the screen. A 'drop' shadow can be added, which is at the top and left of the characters, rather than at the more usual

bottom and right. The background, text and shadow colours can be individually selected, and the text and colours can be stored on a disc file. There are two scroll speeds, but the scroll speed and shadow on/off information are not recorded on the disc.

The fonts supplied are the 'workbench' fonts, which are rather small, and the more ornate ones (e.g: Emerald or Sapphire) are not very readable at the best of times - even less when they have been down a couple of generations on VHS and/or over a P2 or P3 ATV transmission. It is possible to load alternative fonts, but only some are suitable. The only method that I have used so far is on a trial and error basis with my existing fonts.

The titler package will work with font sizes up to about 20 points, above this size odd effects occur and the characters start to overlap. The first extra fonts that I tried were from some discs of 'Zumafonts' that I have used very successfully with Deluxe Paint 3, but these will not work correctly with Pro Video Companion. The fonts themselves are just about right - bold and very readable - but not compatible with the keyboard.

The next step was to try some fonts from some Public Domain discs that I have. This was slightly more promising as at least they were keyboard compatible.

There are many PD companies offering font discs from their libraries, so many of them could be similar. The disc I used was Anglia PD Library's disc U441D 'DTV FONTS'. Some of these fonts worked fully, some worked apart from certain punctuation marks and some worked in just the upper or lower case only. There seemed to be no common reason for these symptoms and the only way to tell would be to try a selection of these PD discs to see which of them worked. AS these discs are quite cheap (less than £1 in some cases) it is not a lot of money to risk.

## SIDEWAYS SCROLL

The third option from the main menu, selected with the F3 key, gives a sideways scroll function. This uses the same fonts as the vertical scroller, and so the above comments on font selection apply.

Once the text has been entered, or loaded, into the program, it can be displayed on a coloured horizontal band (the program writers call it a 'tube') which is moveable by using the mouse to drag it to the required vertical position. The drop shadow is to the bottom and right on this display and there is only one scroll speed.

The colours of the background band, letters and the drop shadow are all individually selectable.

## CONCLUSIONS

Pro Video Companion is a general purpose package, comprising of two smooth scrolling programs (vertical and horizontal) and the eye-catching zoom text. If this combination of facilities is what you are looking for, then it is worth considering the purchase of this software.

Pro Video Companion for the Commodore Amiga computer is priced at £59.95 inc VAT and p&p, and comes with a demonstration disc and a tutorial VHS tape. The package is available from: Visual FX, 1 Saturn House, Calleva Park, Aldermaston, Berkshire, RG7 4QW.

*To whoever submitted this review, please accept my sincere apologies, but I have lost the original and I cannot remeber who you are! ... Mike*

# BATC AWARD NEWS

Bob Webb G8VBA

It is a long time since I last sent any update on awards to the magazine. This is because I have been somewhat redundant due to lack of claimants, but a letter from Arthur G5KS prompted me to put pen to paper.

In 1990 only six awards were given:

| | | |
|---|---|---|
| 46 | EI3FW | Bronze |
| 47 | G6WLM | Bronze |
| 48 | GW7ATG/P | Diamond |
| 49 | G6GHP | Diamond |
| 50 | EI3FW | Silver |
| 51 | G6WLM | Silver |

The Diamond awards were presented at the 1990 convention. GW7ATG/P gained the Diamond award as a result of very enthusiastic contest operating.

G6GHP took full advantage of his coastal location to work continental stations at every opportunity on 70 and 24cm. All points for his award are for simplex exchanges only, as the rules state, but Ron has a very impressive list of 24cm repeaters he has received. His best DX being DB0LO located at JO43RF, a distance of 590kM.

Steve G6WLM is now collecting points for his Gold award.

To date the following numbers of awards have been presented: 6 Diamond, 15 Gold, 6 Silver and 24 Bronze. Only five awards have been presented to overseas stations. Full records are maintained of awards issued and if anyone requires more details please telephone or send an SAE detailing the information required.

Awards are issued to ATV stations in any country and membership of the BATC is not a condition for application. The awards are to encourage ATV activity, so check your logs, you may have enough contacts to claim an award.

73 ... Bob Webb G8VBA BATC Awards Manager

THE FULL AWARD LIST

| | | |
|---|---|---|
| 1 | VK7 | Gold |
| 2 | G5KS | Diamond |
| 3 | VK3ZPA | Bronze |
| 4 | G8DIR | Diamond |
| 5 | G8CJS | Bronze |
| 6 | G8GQS | Bronze |
| 7 | G8PLP | Bronze |
| 8 | G4DYP | Diamond |
| 9 | G8VBC | Gold |
| 10 | G8SVK | Bronze |
| 11 | G8GHH | Gold |
| 12 | D.Anderson | Bronze (RX only) |
| 13 | G4BPO | Gold |
| 14 | G8VBA | Bronze |
| 15 | G8AKF | Bronze |
| 16 | G4MOU | Bronze |
| 17 | G6FPU | Gold |
| 18 | G8MCQ | Bronze |
| 19 | G8SSY | Bronze |
| 20 | G6CTZ | Bronze |
| 21 | G8XRX | Silver |
| 22 | G6JFN | Bronze |
| 23 | G2BMI | Bronze |
| 24 | G6CZE | Gold |
| 25 | G4EIB | Gold |

| | | | | | |
|---|---|---|---|---|---|
| 26 | GM4BVU | Gold | 39 | G8ONX | Gold |
| 27 | G8YFE | Bronze | 40 | G3NAQ | Gold |
| 28 | G6CUQ | Gold | 41 | G0EIY | Silver |
| 29 | G6XUM | Silver | 42 | G8LIR | Diamond |
| 30 | G1EVP | Silver | 43 | G8OZP | Bronze |
| 31 | G8KZG | Bronze | 44 | W9PRD | Gold |
| 32 | G4YAI | Bronze | 45 | G4EIX | Bronze |
| 33 | G8PX | Gold | 46 | EI3FW | Bronze |
| 34 | G1SHR | Bronze | 47 | G6WLM | Bronze |
| 35 | G4DVG | Bronze | 48 | GW7ATG | Diamond |
| 36 | G4ZXI | Bronze | 49 | G6GHP | Diamond |
| 37 | G8VZT | Gold | 50 | EI3FW | Silver |
| 38 | G1DMJ | Gold | 51 | G6WLM | Silver |

The BATC award is available to both transmitting and receiving enthusiasts, in any part of the world, whether they are members of the BATC or not. The award is for contacts made using fast-scan high definition television systems only.

**TRANSMITTING AWARD**: For pictures transmitted which have been successfully identified by another station, claim 2-points per kilometer; if the contact becomes a successful two-way exchange of pictures, then 10 bonus points may be claimed by each station regardless of distance. For contacts on the 1.3GHz band or above, points are doubled.

**RECEIVING AWARD**: For any picture positively identified - claim for a one-way contact. Otherwise rules are as for transmitting.

**POINTS**: The award is divided into four grades: For the Bronze - 1,000 points, Silver - 5,000 points, Gold - 10,000 points and for the Diamond - 100,000 points. Points already gained for an existing award may be added in when applying for a higher grade.

**CONTACTS**: A station may be worked once only per day for the purpose of this award. It is quite possible for it to be gained by working the same station many times. Contacts through TV repeaters do not count.

**THE AWARD**: Upon qualification for the Bronze award, a certificate will be issued together with a Bronze seal; the certificate may be up-graded later with Silver and Gold seals. The Diamond award is in the form of a specially made trophy.

**APPLICATIONS**: Applications should include log details consisting of call sign, date of QSO, band, location of the station worked and points claimed. Contacts made from other than the home station should be clearly marked. QSL cards are not required, but the application should be checked and signed by either a licensed amateur or a BATC member.

**CERTIFICATE APPLICATIONS SHOULD INCLUDE A LARGE (12'' x 8.5'') STAMPED ADDRESSED ENVELOPE**

For upgrade seals an ordinary SAE should be enclosed.

Applications should be made to the Awards Manager: Bob Webb G8VBA, 78 Station Road, Rolleston-on-Dove, Burton-on-Trent Staffs. DE13 9AB. Tel: (0283) 814582.

# ASCII KEYBOARD TONE ENCODER AND DECODER

Trevor Brown G8CJS

The following circuit was designed to fix a specific problem in a repeater, but is useful for any control application that requires a remote keyboard.

During the rebuild of our local ATV repeater GB3ET we decided to investigate the possibility of updating the Teletext news pages that are displayed between QSO's, over the air. These pages had been a feature of the previous logic but were stored in EPROM and not easily updated. The new logic is based on the club's I²C CPU and VDU, and as such requires a parallel Keyboard. Fig.1 shows a simple way to convert the keyboards output to audio tones that could be sent over the repeaters audio channel. Fig.2 is the circuit which decodes the tones back to parallel data at the repeater site.

Fig.1 is the keyboard end, or encoder, the AY-3-1015d UART is used to convert the parallel data to serial. This UART was chosen because all the serial data options (odd even parity, number of stop bits etc) are selectable by hardware links. The alternative type of UARTs require this data to be keyed in, ideal if driven by a computer where the data can be incorporated into a programme, but not so for the humble keyboard, where key-stroking each command is the order of the day.

The UART requires a clock that runs at 16 times the board rate, which in this case is 300 Baud. The clock was generated using an NE555 timer in its astable mode. RV4 should be set for 16 times 300 Hz at TP1, if a scope is available, if not I will explain how to adjust it later.

The serial data from the UART is encoded into two tones that can be sent over the repeater audio channel by the XR2206 tone encoder. RV3 sets the mark frequency and RV2 sets the space frequency. If a frequency meter is available monitor the audio output of the XR2206 disconnect pin-9 and link it to +5 volts set RV3 for 980 HZ. Pin-9 should then be grounded and RV2 set for 1180 HZ. RV1 sets the amplitude of the tone and should be set for standard deviation of the audio channel. Again I will cover later setting RV2 and RV3 with minimal test equipment.

At the repeater end the tone is decoded back to serial data by an XR2211 tone decoder and the serial to parallel is achieved by another AY-3-1015d. The baud rate clock uses the more expensive approach in that a 4207 Crystal locked generator is used. The crystal is a standard 2.4567MHz and the link options on the chip configure the 4207 to generate the required 16 time 300Hz. This chip and xtal are more expensive than the simple NE 555 used in the encoder, but require no setting up and as such are ideal for the unattended repeater end.

When the UART has received a serial data word and converted it to parallel data, the data valid flag is set to indicate that a received word is present on its output pins,

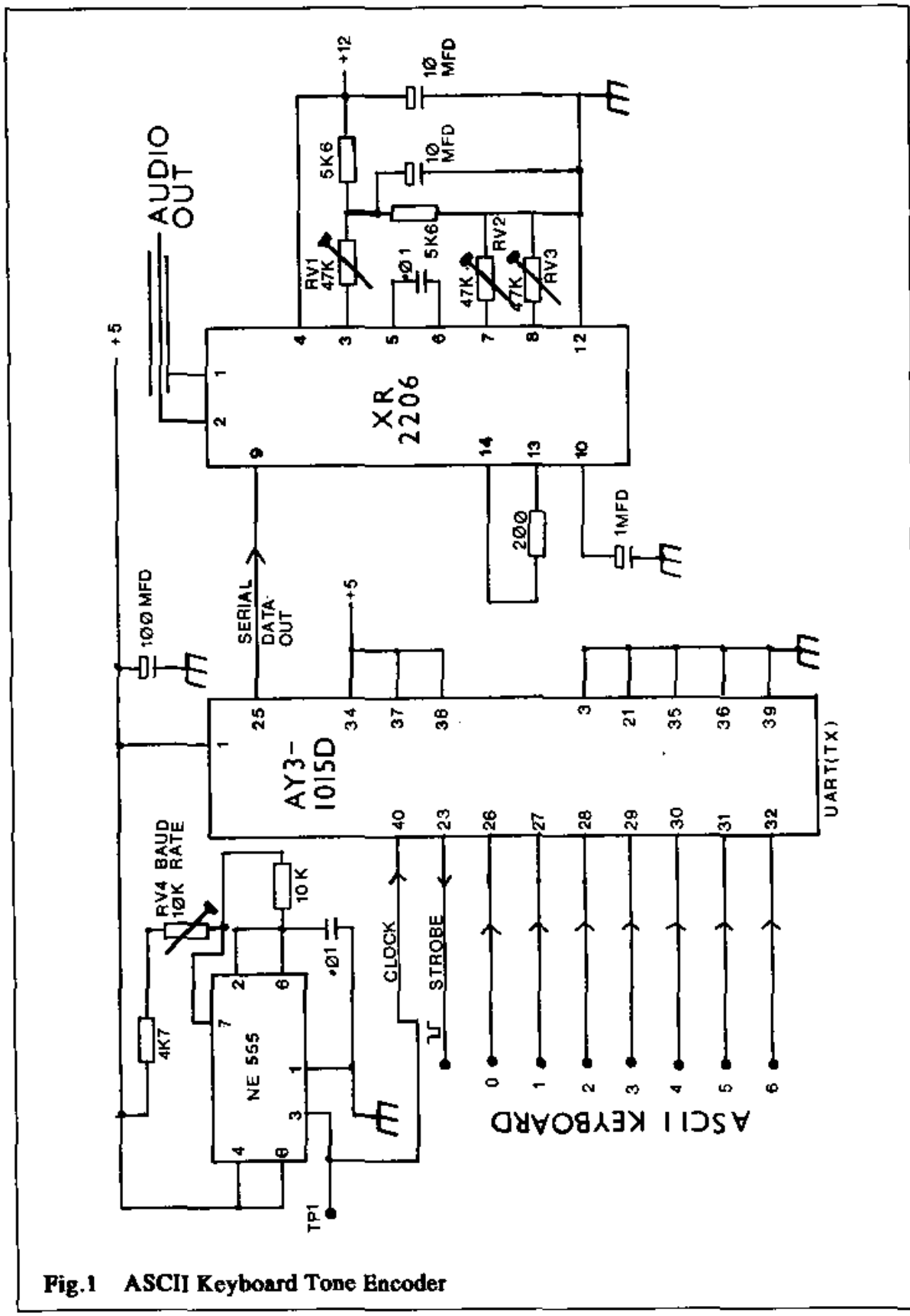



**Fig.1 ASCII Keyboard Tone Encoder**

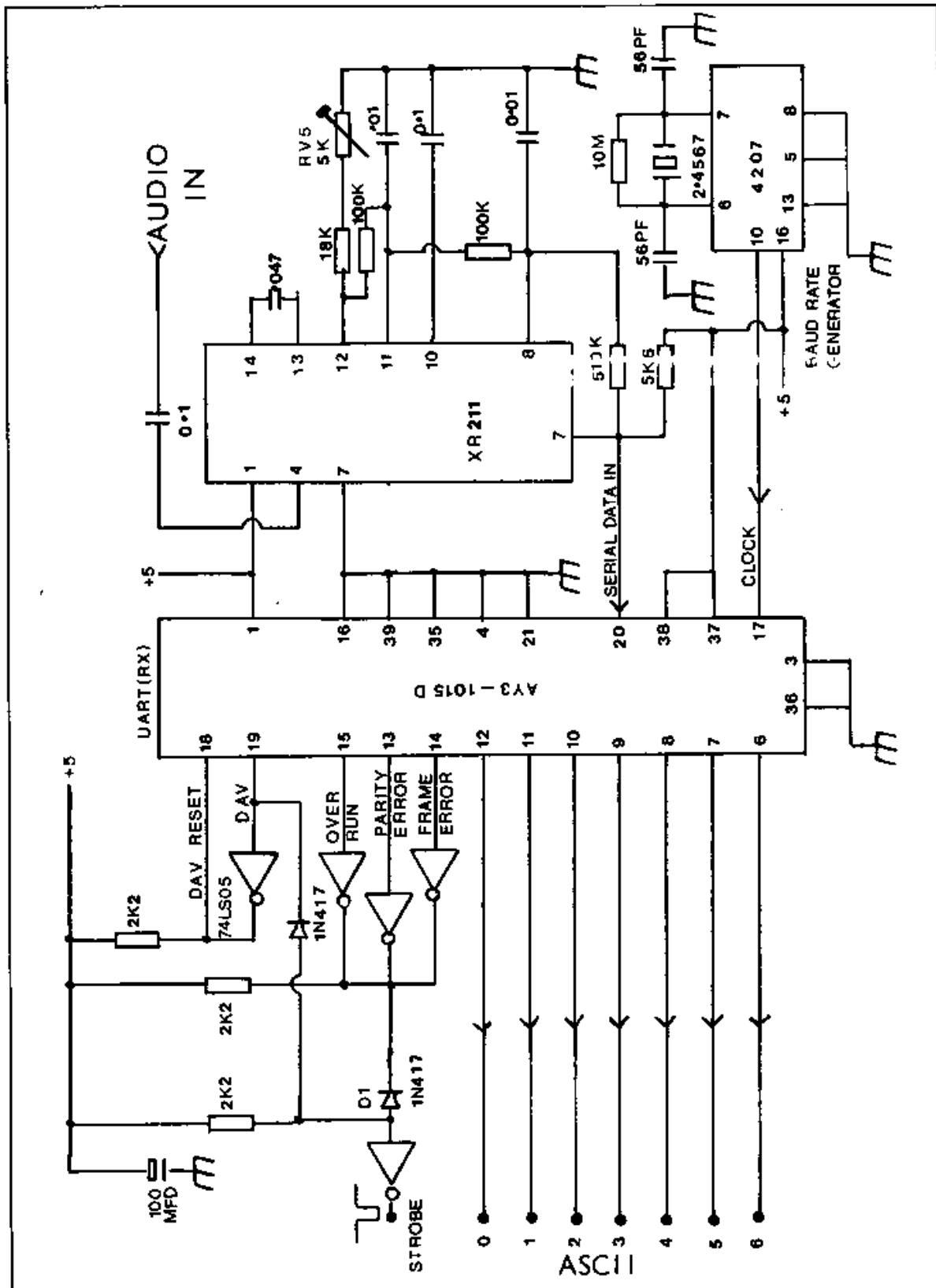



**Fig.2: ASCII Keyboard Tone Decoder**

this is fed back via an inverter to reset the data valid flag in order that the UART may receive the next incoming word. The DAV is also fed out via an inverter to become keyboard strobe. The UART carries out various error checks on the received data such as, parity error, frame error, and data over run, should any of these errors be present it indicates that the received data may be corrupt, by putting a logic one on pin-13, 14 or 15 depending on the error. The TTL logic associated with these pins is arranged to inhibit the strobe pulse under such error conditions, in so doing that key press will be ignored.

The repeater logic is such that it displays the news page when it is being composed, you will automatically press the key again, should it not register. In practice data errors are not a problem and the system faithfully reproduces the keyboard presses at the repeater.

Should you want to remove this error protection for any reason omit diode D1, then the data will be reproduced at the output of the UART irrespective of parity, overrun and framing errors.

Both units can be set up with minimal test equipment, just some way of detecting logic 1 and 0 such as a logic probe or meter, in the following way:

Disconnect the serial input to the UART on the decoder pin-20 and connect it to the serial output on the encoder UART pin-25. Check both units have a common ground and adjust RV4 until the keyboard data is faithfully reproduced at the receiver, i.e: the NE555 is generating the same board rate as the crystal locked 4207, reconnect the UARTs.

To set up the tone encoders and decoders patch the audio out of the encoder to the audio in of the decoder. Set RV5 to mid range and ground pin-9 of the XR2206 and adjust RV2 for a logic 0 at pin-7 of the XR2211. Next put +5 on pin-9 of the XR2206 and set RV3 for a logic 1 at pin-7 of the XR2211. Restore pin-9 of the XR2206. The keyboard data on the output of the decoder will now faithfully follow the key presses on the the encoder keyboard.

If a frequency meter is available set RV2 and RV3 for 1180 Hz with pin-9 of the XR2206 grounded and 980Hz with pin-9 at +5 volts then adjust RV5 for best results.

---

# WANTED! - YOUR PICTURES

WE WANT PICTURES OF YOUR ATV SHACK OR PICTURES OF ANY ATV EVENTS, ATV CONTEST GROUPS, OFF-AIR SHOTS, ETC., FOR USE IN CQ-TV. PLEASE SEND YOUR PHOTOS TO MIKE AT THE EDITORIAL ADDRESS

# ANALYSER III

# AN ANALOGUE CIRCUIT SIMULATOR FOR THE PC

*Review*

Mike Wooding G6IQM

## INTRODUCTION

Designers of analogue equipment are fully aware of the difficulties of testing their designs to confirm that they work according to plan. Even more difficult is the ability to conduct the infinite number of tests over the full frequency spectrum that the design is intended to work over.

Furthermore, it is very expensive in time and labour to build breadboarded prototypes to conduct the tests on. The probability of destroying expensive devices is even more off-putting! However, all is not lost! A recent addition to the professional software packages produced by Number One Systems Ltd. is Analyser III.

Analyser III is a fast, advanced and easy to use Linear Analogue Circuit Analysis program . The package allows designs to be tested without soldering a single component and, often more important, without the need for expensive test equipment. The circuit design can be tested on your PC and modifications made until the circuit functions as required - all without using a soldering iron in anger, or blowing up any expensive devices.

The system is ideal for the analysis of filters, amplifiers, cross-over networks, wideband amplifiers, aerial matching networks, radio and TV IF amplifiers, chrominance filters, linear integrated circuits, etc. Analyser III also has advantages over physical test equipment, in that it allows analysis over a frequency range from 0.001Hz to 999GHz, showing gain, phase, group delay and input and output impedances.

## ANALYSER III

Analyser III is a linear analogue circuit analyser program that runs on PC/XT/AT/286/386/ or 486 computers running under MS-DOS 3.0 or later (also DR-DOS 5 and 6) and with either EGA or VGA graphics, preferably colour. The minimum RAM requirement is 512K, and the software is supplied on both 5.25'' and 3.5'' format floppy discs. It is almost imperative to have a hard drive, as the program keeps a high proportion of its temporary data on disc during operation, and if using a floppy only based machine the operation of Analyser III will be extremely slow. The program also supports the use of a mouse, although the software is easy to use via the keyboard, and a choice of either 9 or 24-pin dot-matrix printers or HP Laserjet II printers.

## THE USER MANUAL

The comprehensive user manual is packaged in an A5 ring binder, which will allow for the easy insertion of upgrade instructions, personal notes, etc., and follows the well

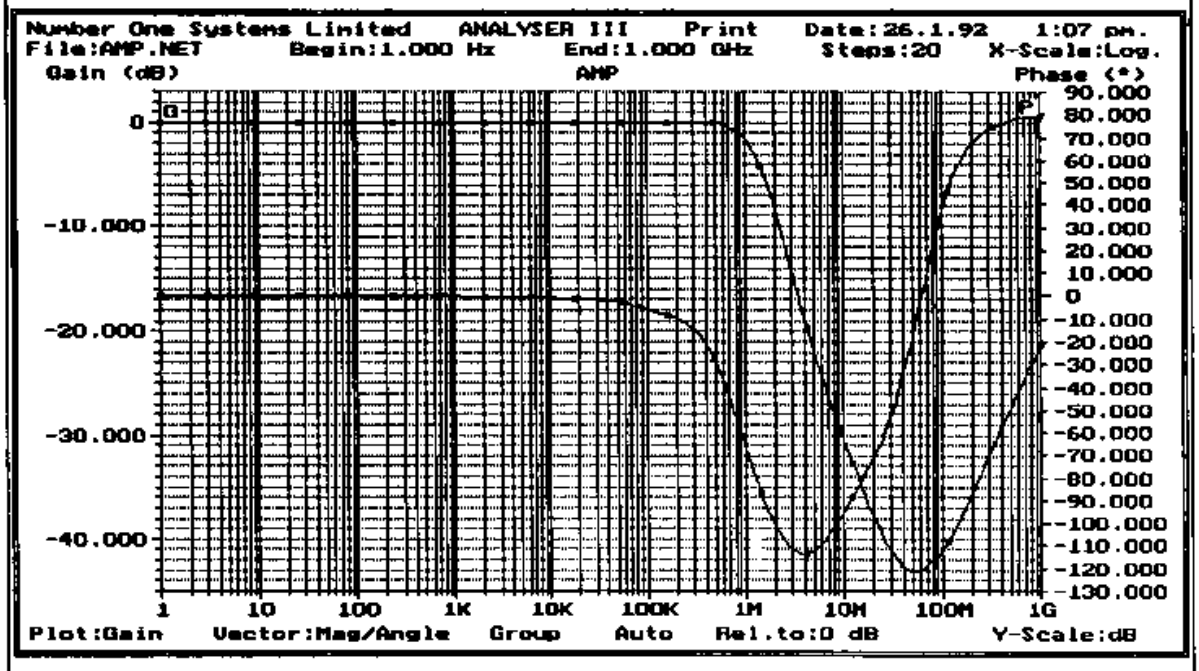
established pattern of Number One Systems' program documentation. The opening pages of the manual deal with an overview of Analyser III, the installation and running of the program.

The next section in the manual is called 'First Impressions' and gives an outline of the screen presentations and some of the basic commands used to manipulate these screens and move around in them. Once the user is familiar with these basic commands then it's on to the next section - 'The Grand Tour'.

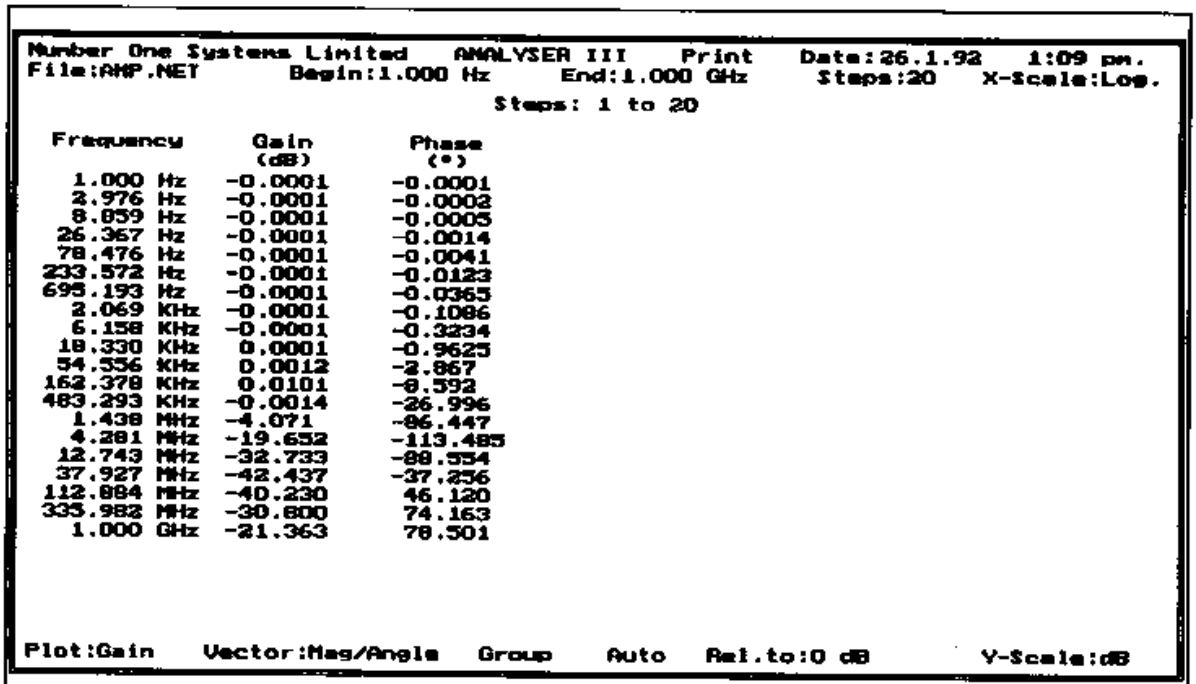
'The Grand Tour' comprises the greater part of the user manual and takes the user through a step-by-step simulation; from entering the initial design netlist, to the final proven circuit. To assist with the instruction a predesigned simple passive twin 'T' notch filter circuit is used as a practical example, from which a netlist is composed.

N.B: A netlist is simply a file of connections between the various components within the circuit, their values and any other associated parameters, such as small signal gain (hfe) or transition frequency (ft), for example, for a bipolar transistor. The libraries supplied within Analyser III contain ready-made netlist outlines for many basic circuit structures and various popular bipolar and FET transistors, op-amps, etc.

After the comprehensive chapter dealing with the netlist editor and the making of a netlist for the circuit, the section explaining how to actually run the analyser is reached. Firstly, selecting the input and output connections is required and then Analyser III calculates the displays the frequency and phase response curves for the circuit. Initially, the display defaults to a frequency range of 1kHz to 1MHz, but this range, and any other of the display parameters, can be changed simply by a few clicks of the mouse button or keyboard presses, which are explained in detail in the next section of the manual.




**A display of the Gain and Phase characteristics of an amplifier in graphical form**



```
Number One Systems Limited   ANALYSER III    Print    Date:26.1.92   1:09 pm.
File:AMP.NET       Begin:1.000 Hz      End:1.000 GHz     Steps:20    X-Scale:Log.
                                Steps: 1 to 20

  Frequency       Gain        Phase
                  (dB)         (°)
    1.000 Hz    -0.0001      -0.0001
    2.976 Hz    -0.0001      -0.0002
    8.859 Hz    -0.0001      -0.0005
   26.367 Hz    -0.0001      -0.0014
   78.476 Hz    -0.0001      -0.0041
  233.572 Hz    -0.0001      -0.0123
  695.193 Hz    -0.0001      -0.0365
    2.069 KHz   -0.0001      -0.1086
    6.158 KHz   -0.0001      -0.3234
   18.330 KHz    0.0001      -0.9625
   54.556 KHz    0.0012      -2.867
  162.378 KHz    0.0101      -8.592
  483.293 KHz   -0.0014      -26.996
    1.438 MHz   -4.071       -86.447
    4.281 MHz   -19.652      -113.485
   12.743 MHz   -32.733      -88.554
   37.927 MHz   -42.437      -37.256
  112.884 MHz   -40.230       46.120
  335.982 MHz   -30.800       74.163
    1.000 GHz   -21.363       78.501

Plot:Gain    Vector:Mag/Angle   Group    Auto   Rel.to:0 dB        Y-Scale:dB
```

**A display of the Gain and Phase characteristics of an amplifier in tabular form**

'The Grand Tour' then goes on to deal with the various different displayed parameters available, such as group delay, vector selection, scaling the various plots, including offsets in the analysis, using the display grids and tabulating the results.

The remaining sections of the user manual deal with printing out the plots, converting circuits to single components for inclusion in more complex circuits (e.g: using the notch filter in the feedback loop of an amplifier) and adding them as library entries, using the libraries, customising Analyser III to your exact requirements, using the DOS browser and, finally, a list of the built-in library component entries is given.

## THE ANALYSER

Once a circuit netlist has been created and the input, output and ground connections established Analyser III simulates the circuit operation and displays on the screen a plot of the frequency and phase versus gain such as one would see displayed on a circuit analyser or spectrum analyser, but only after the circuit had been built.

The display screen is divided into three main areas. The top of the screen contains the main menu, showing Analyser III's top-level commands, with the currently active mode highlighted. The program defaults to the analyser mode on start-up. The other modes are:

Configuration Customises Analyser III. Libraries Maintains Component libraries. !DOS Manipulates Files and Directories F1Help On-line help information. Quit Leave Analyser III.

Also shown in the menu area are the file name of the circuit currently being analysed, the frequency limits of the analysis, the number of steps in the analysis and whether the scales are logarithmic or linear.

**CONFIGURATION:** This command selects a set of menus which allow the default parameters for Analyser III to be set according to the users choice. The default

search paths for files, the time and date format, etc., can all be preset by the user and the configuration saved.

**LIBRARIES**: The library command allows the various libraries to be scanned and manipulated.

**!DOS**: Selecting this command displays a menu of basic DOS commands which are available for use without leaving Analyser III. Also selectable is a DOS Shell, which allows you to exit Analyser III to the DOS prompt, but without losing any data currently held in Analyser III. Quitting the DOS Shell returns you to Analyser III, exactly where you left it.

**F1 HELP** and **QUIT** are self-explanatory.

The main area of the screen is devoted to the analyser display, with the moveable cursor.

At the bottom of the screen is a sub-menu of control commands for the different plots, a display of the relative level of the plot and the scaling factor for the Y axis.

With Analyser III the only limitation to the frequency range of the analysis is that it lies within the limits 0.001Hz to 999GHz! In other words, just about any circuit that you care to analyse can be accommodated within Analyser III's capabilities.

Having spent most of my working life in electronic test laboratories, I think I can safely say that I do not know of any circuit or spectrum analysis equipment that will directly look at frequencies much above 100GHz, let alone 999GHz!

*The usual way to perform such tests is to* down-convert the final signal before conventional display analysis, and that system has all sorts of inherent inaccuracies present, and the system has to be 'normalised' to eliminate the effects that the down-conversion has on the display. Also, the circuit has to be prototyped and built before such analysis can take place.

There are more features of Analyser III than I have covered here, but to attempt to explain them and their uses here is somewhat pointless as you really need to have Analyser III 'live' in front of you to understand their actions. Suffice it to say that they are well explained in the user manual.

## THE LIBRARIES

As I mentioned earlier there are inbuilt libraries in Analyser III, which make the creating of netlists much quicker. The libraries are:

**1) PRIM.ALB**: a library of all the basic device models.

**2) DEVICE.ALB**: this library contains a selection of 'real' device models. All the components in this library are made up from the primitive elements in the PRIM.ALB library with the appropriate parameters set.

As there are many thousands of different devices, and every engineer has his/her particular favourites, this library is really intended as a set of examples to help the user create his/her own personal set of libraries.

When building up netlists for a circuit, then by naming the component type being used, Analyser III responds by reading the pin and parameter information from the library for the device, all you have to do is enter the various connection details.

Circuit blocks previously designed and tested can be added to the libraries, which is a useful feature if you are using a common circuit time and time again.

## CONCLUSIONS

Creating a netlist for a circuit design is not as daunting as it may first appear, and only having done such once before I followed the instructions, and in a very short time got to grips with the concept and created the netlist for the example circuit. Following the instructions I then connected my inputs and outputs and Analyser III analysed the circuit and presented the plots on the screen.

Upon running the analyser and playing with the many and varied features, it soon became evident that the facilities available are quite extensive. The versatility of the package as a design testing tool is unquestionable. Using conventional circuit and spectrum analysers often as I do, I can imagine that in a development environment Analyser III would be far more ideal. The fact that a design circuit does not actually have to be built would be one great advantage. That, coupled with the ability of Analyser III to analyse the circuit over as wide a frequency spectrum as you like, plus the ability to change devices in the circuit for re-analysis, could prove a great boon to circuit designers.

Although I barely scraped the surface of Analyser III's capabilities I can recommend it to anyone engaged in linear circuit design and testing work. Armed with his/her trusty PC and this software, a designer should be able to test to production stage a circuit without even raising a soldering iron in anger and committing any devices to the breadboard, or dustbin! Highly recommended.

I wish to thank Mr.Espin and the staff of Number One Systems Limited for their help and advice, and for the review software.

ANALYSER III is priced at £195.00 + £4.75 p&p + VAT and is available from: KM Publications, 5 Ware Orchard, Barby, Nr.Rugby, Warwickshire, CV23 8UF. Tel: 0788 890365. International: + 44 788 890365. FAX: 0788 890365.

# THE MENDIP REPEATER GROUP TEST CARD PCB

*This short article was sent to me anonymously, so once again, thank you whoever you are ... Mike*

The Mendip Repeater Group have produced a new double-sided, through-hole-plated printed circuit board for the Radio and Electronics World testcard, but with a number of enhancements and modifications developed by their technical Committee over a number of years.

One of the major problems is that everything produced to date has been in the form of add-on boards. By the time you have added a colour encoder, facilities for selecting up to sixteen different cards and an auto-sequence facility, the board not only is sprouting wires everywhere, but needs extensive modification. The original board supplied with the kit could be be described as a 'made to a budget' version, lacking through-plated holes and with thin fragile tracks. Most of the boards we fixed over the years had faults that could be directly attributed to the PCB itself.

The Technical Committee's brief was to design a high-quality double-sided board with through-plated holes that would fit onto a standard Eurocard and be easy to construct. Additionally, it should be able to be built as colour or monochrome, with or without multipage facilities.

The group have obviously gone to a lot of trouble to ensure that the accompanying literature is of the same high standard. With each PCB you get a full circuit diagram, parts list, components layout and comprehensive instructions on how to populate the board. These instructions also give advice on soldering and handling of static-sensitive devices. Included is an address on where to get your customised EPROMs from and also details of a 'get you going' service, in case of any problems.

Building the board itself was a pleasure, all the components neatly slotting into their places. The quality of the board made soldering it all up very easy. My only criticism was that the component overlay assumed that you used the stated transistors - it was not immediately obvious which was the base, collector or emitter pads - though five minutes with the circuit diagram enables you to work this one out.

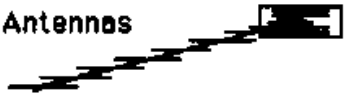
My board took an evening to build up and I am pleased to say it worked first time. It has proved both invaluable as a high-quality vision source for use in the shack and also for producing large contest numbers on field days, without the complication of getting cameras and lights set up.

---

*Perhaps a member of the Mendip Repeater Group would like to contact me with any further information on this PCB, kit, etc. Little things like a price and an ordering address would not go amiss! ... Mike*

## Severnside Television Group

### STG 24cm Antennas



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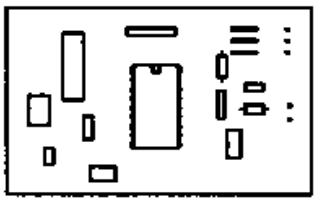

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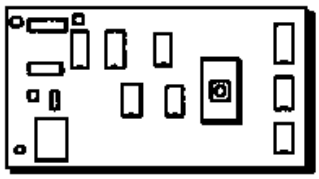

New!! The STG now offers a ready built and tested TEST CARD GENERATOR. Displaying up to 4 test cards ready programmed with your CALLSIGN and QTH. The cards cycle automatically or can be manually displayed. The output is 1 vpp PAL comp. COLOUR. Please supply your CALLSIGN and QTH with order.

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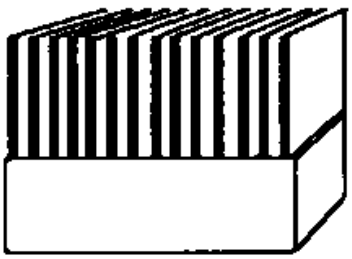

A 20 Watt PA using the SC1040 module is now available to accompany the AZTEX TX

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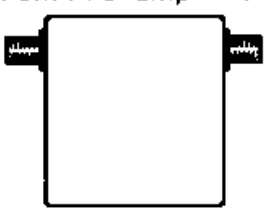

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**AZTEX Electronics**

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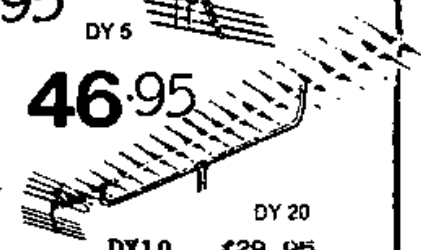
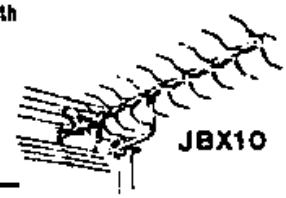
| JBX21 | A,B,CD | 16.0dB | 22dB | 3.23m |
| DY5 | WB | 12.0dB | 16dB | 0.68m |
| DY10 | A,B,CD,WB | 13.0dB | 16dB | 1.40m |
| DY20 | A,B,CD,WB | 15.5dB | 18dB | 2.60m |
| DY28 | A | 18.3dB | 18dB | 4.00m |

**DOUBLE-Y**
DOUBLE-DIRECTOR UHF ANTENNA

DY 5 **19·95**



DY 20 **46·95**



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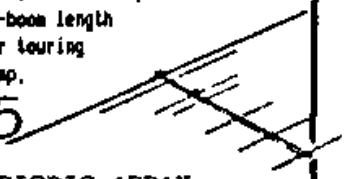

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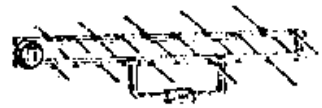

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**MARCONI RECEIVER and TRANSMITTER OUTPUT TEST SET** type TF1065A ... £50. 3 off Sony DXC1200P Studio CAMERAS with 5" viewfinders, headphones and manuals. 5 x 25M multicore CABLE for DXC1200P cameras. Sony MD1200P SYNC GENERATOR and manual. Sony SEG-200P VISION MIXER and manual ... £500 for the lot. 4 off Cotron B&W 9" MONITORS ... £30 each. 4 off 26" colour MONITORS ... £15 each. Vitel VISION MIXER, 16 channels, 1 M/E bank, 1 mix bank, CSO, DSK, manual ... £350. 2 off TRIPODS and DOLLIES, ideal for DXC1200P cameras .. £30. Sony 1600P colour CAMERA, CCV, manual ... £15. Shibaden colour CAMERA, CCV ... £10. 19" RACK, 47" high ... £20. Jeremy Power G1WVK. Tel: 0442 871386.

**Breaking for spares:** AMPEX VPR2, complete mechanical assembly, including scanner, heads, motors, etc. Some boards also available, plus some boards for TBC2. All parts free to good homes apart from cost of carriage. David Donaldson, 36 Caldwell Road, West Kilbride, Ayrshire, KA23 9LF.

**NICAM STEREO DECODER** board (Maplin) complete, built and tested, info included ... £50. SHARP CCTV SYSTEM, 1 camera & monitor, single coax feed system (power, sync and video) very little used, A1 picture, monitor accepts up to 4 cameras ... £60. ELECTRONIC ZOOM LENS 12-75mm, simple 5 to 12 volt operation for zoom, focus, iris ... £50. STANDARD C58 70cm 1 watt portable transceiver c/w mobile mount, nicads, handbook, etc. ... £125. 6" VEGA B&W TV modified for baseband video input ... £20. ROTATOR (Maplin no: XB54J) as new ... £20. WESTERN DIGITAL 20M hard drive, suit PC, etc. 100% working, no control card ... £50. Also 40M hard drive with controller card, some bad blocks but works ... £50. Sell or exchange, please see Wanted section. John Grantham. Tel: 0274 818959

**Panasonic NV-180E PORTABLE VHS,** with slide-in mains PSU and battery ... £250. ILLUMINATED DIASCOPE for I.O. camera, new condition, with power supply for lamp. Slides onto lens, takes two 2" x 2" slides ... £50 or swap. Two Pye LYNX CAMERAS, clean but untested ... £20 each or £30 the pair. Zeta ZRX1 SATELLITE RECEIVER, 12V operation, full coverage (includes Telecom band), as recommended by the GB3TG team for 10GHz TV. Unopened, sell at cost price ... £70. Postage at cost. Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604-844130.

**"405 Alive" MAGAZINE,** now in its fourth successful year, covering 405-line technology and programming from the 30s to the 80s. Subscribers find it irresistible! Four 64-page issues for £12 or have a sample copy for £3.00 post paid. Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH.

**8mm FILM TO VIDEO TRANSFER** service, 25% discount to BATC members. Telephone for details. Simon Gough. Tel: 0234 852789.

**TEST CARD VIDEOS FOR SALE:** 55 minute video presentation made for the BATC "The Development of the TV Test Card". Andrew Emmerson interviews George Hersee, designer of Test Card F. Lots of old test cards included. And also ... "Exotic TV Idents", which covers East Germany, USSR, Poland, Czechoslovakia, Estonia and Romania and other exotic locations such as Mongolia, Libya, Algeria, New York, "BBC London". Plus many west European countries, as well as satellite channels. In all there are over 80 test cards, station idents, news programmes and start-of-day recordings, lasting 49 minutes in all. Explanatory captions describe each segment and the recordings were made in a TV studio "somewhere in Eastern Europe". Both tapes are VHS/PAL and cost £9.99 including postage. Please allow 14 days for delivery. Andy Emmerson G8PTH, 71 Falcutt Way, Northampton, NN2 8PH. Tel: 0604-844130.

**OBSOLETE TAPE!** People requiring cassette tapes for Technicolor 1/4" and Philips 1500, 1700 and V2000 VCRs should contact Stephen Albrow, Globe Video Services, 192 Castelnau, London, SW13 9DH.

**FORTOP 70cm TVT435/R TELEVISION TRANSCEIVER,** good condition, no mods ... £135. Sinclair Spectrum PRINTER INTERFACE and software ... £20. Sinclair Spectrum WAFER DRIVE with wafer cassettes, as new ... £25. Harold G0EZW, 97 Nottingham Road, Selston, Nottingham, NG16 6BU. Tel: 0773 810010.

**Sony 1610 COLOUR CAMERA** ... £10. Cosmicar 25mm C-mount LENS ... £10. Turbo daisy-wheel PRINTER with RS232 lead ... £55 ono. KRS D audio CARTRIDGE MACHINE with cartridges ... £15. Yamaha MT44 4-track CASSETTE MACHINE with Dolby B/C ... £100. Simon Gough. Tel: 0234 852789.

**C-MOUNT LENSES:** Soligor 10mm, 14mm and 75mm plus Cine-Nikkor 50mm. All f1.9 or 1.8 with iris and focusing mounts ... £50 the lot ono. David Wilkinson, 43 Castleford Avenue, London, SE9 2AH. Tel: 081 850 5594.

**VIDEO DISC PLAYER** complete with matching 20" colour television. both in excellent working order. Includes one 12" video disc ... £50. VHF/UHF MONOCHROME TELEVISION, portable in excellent working order ... £30. Buyers collect or pay carriage. R.Langer G8LJE, Sheffield. Tel: 0742 557229.

# EXCHANGE & WANTED

**WANTED:** 24cm Linear Amplifier, 1 watt input. U-Matic edit suite or similar (only B&W required) with recorders. Any ATV related gear or W.H.Y. Please see advert in For Sale section. John Grantham. Tel: 0274 818959.

**WANTED:** any info, circuit diagram, etc., for Rediffusion studio programme monitor, ex BBC 22'' PIL tube, marked 'CHVM/3/56P'. Also wanted tapes (VHS) of any 'Now You're Talking' programmes; short term loan I promise, can collect and return mid/south Wales. Any contact re programme content would be welcome too. Bryan Dandy G4YPB, QTHR. Tel: 0905 620616

**WANTED:** Many thanks to the people who sent me the old catalogues I was looking for; BATC people are marvellous! But now I'm looking for something else... old TV aerial in-line attenuators for 24dB and 36dB (and higher?!?). You've never used them of course. Finders rewarded. And does anyone have a spare EMI Printicon 9788 or Thomson Scripticon TH9503 (1'' vidicon-type character generators)? Thanks! Andy Emmerson, 71 Falcutt Way, Northampton, NN2 8PH (tel: 0604 - 844130).

**WANTED:** CCU type 351 and camera cable for Ikegami ITC 350 colour camera. Also circuit diagrams and spares for Sony PVM 4000CE monitors. Simon Gough. Tel: 0234852789

**WANTED:** 60 minute U-Matic cassettes in good condition. Please Fax or phone Mike on 091 267 2583.

**WANTED:** Broadcast quality Black and White camera channel from the 1950s or 1960s. Also an EMI 2001 colour camera channel. Good prices paid and other camera channels considered. W.H.Y. John Gillies. Tel: 081 573 7517.

**WANTED:** 1985 Maplin Electronics catalogue. Stuart Anderson, 9 Paganel Drive, Dudley, West Midlands, DY1 4AZ.

**WANTED:** Working SPG, CQ-TV 129 design based on a ZNA134 IC. For disposal Aston SPG5. Mr.J.G.McCormack, 19 Grosvenor Street, Castleton, Rochdale, OL11 2SU.

**WANTED:** correspondent for exchanged thematics stamps about Radio Amateur or Telecommunications. Also, historical elements of the Radio and Television events such as: newspapers, magazines, photographs, films, videos, etc. Manuel Varella CT1GM, R.Prof. Delfim Santos, 1-2C, 1600 Lisbon, Portugal.

**WANTED:** Handbook or Circuit Diagram of a Spectar Javelin CCTV Camera. Also, any information, circuit etc., for a Sinclair Monitor type MON 1A, 525 - 625 line monitor, 50mm tube. All expenses paid. Mr. Taylor. Tel: 081 393 7478

**EXCHANGE:** Sony U-MATIC HS/professional portable video cassette recorder and a Sony Colour adaptor CLP 500P to exchange for an Amiga 500 with SSTV program and cables. Manuel Varella CT1GM, R.Prof. Delfim Santos, 1-2C, 1600 Lisbon, Portugal.

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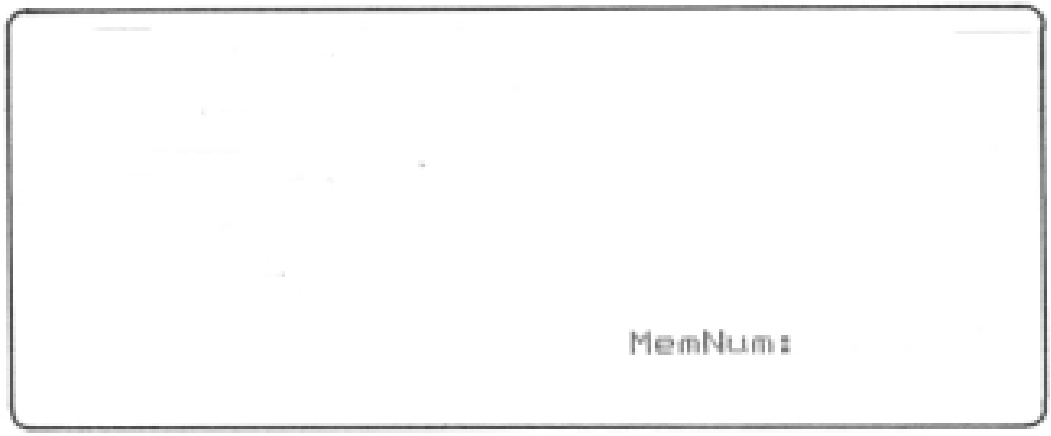
Your membership number is printed on the address label below.

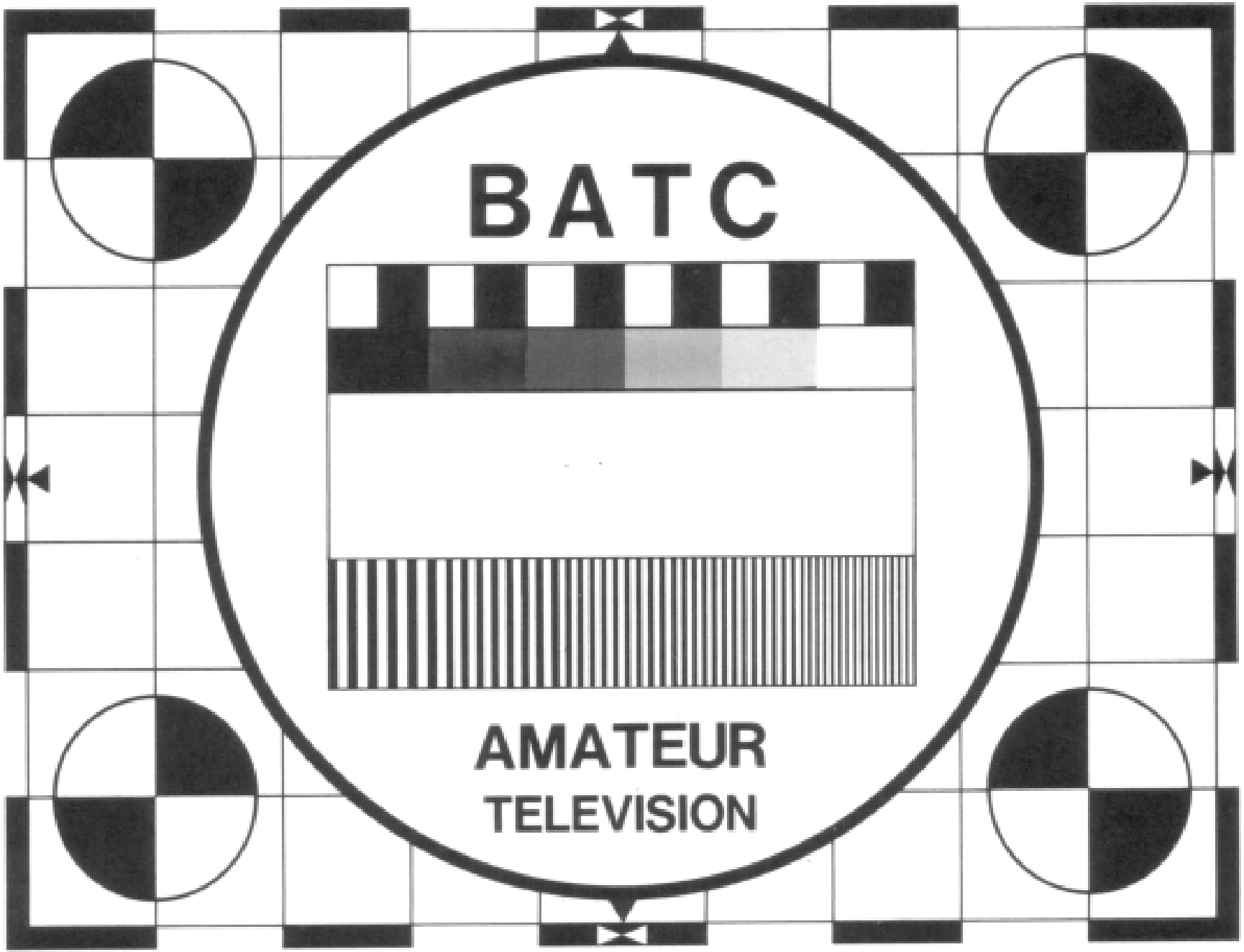
The first two digits indicate the year that your subscription has been paid up to, and the rest is the club's database number.

Please keep your current membership number as it is possible that it may be needed in the future to obtain club discounts as well as club sales items at rallies and shows.

You will also note that we are again able to print your callsign on the address label.

# KEEP YOUR MEMBERSHIP NUMBER SAFE




BATC
AMATEUR
TELEVISION

# KM PUBLICATIONS

KM Publications are pleased to announce that they have been appointed sole UK agents for the C+A Electronics range of kits. This exciting range of kits, although new to the U.K., is manufactured by the well-respected company C+A Electronics of Athens, Greece. The range of kits covers a broad spectrum of projects, including power supplies, audio units, test equipment, alarms, video, television and amateur equipment. The kits are all made up from high-quality components and professionally produced printed circuit boards.

Should it be required, KM Publications can offer a full back-up 'get-you-going' and repair service, on a low-cost postage charge only service, unless components need replacing that have been damaged by misuse or mishandling.

The following list gives details of a few of the kits available. All prices quoted include VAT at 17.5%. Postage and packing is extra at £1.50 per unit.

## *INTRODUCTORY OFFER!*

## SEND THIS PAMPHLET WITH YOUR ORDER AND GET A 10% DISCOUNT

AMATEUR TELEVISION (SAE for full details and specifications):

70cm FAST SCAN TV TRANSMITTER. Price £45.95

70cm FAST SCAN TV UPCONVERTER (UHF TV output). Price £9.95

70cm 10W POWER AMPLIFIER. Price £45.95

70cm TO 2M AND TV UPCONVERTER - two for the price of one! a sophisticated full-coverage 70cm to 2M converter plus a channel 52 TV output for receiving and viewing ATV. Power supply 10V DC @ 30mA. Price £38.55

SELECTIVE WIDEBAND UHF PREAMPLIFIER - this unusual preamplifier uses a monolithic wideband amplifier made by Hewlett-Packard and features a 10MHz passband, a sensitivity of -104dBm, a noise figure of 108dB and an 84dB dynamic range. The PCB measures 145 x 70mm. Price £28.75

SLOW SCAN TELEVISION DECODER - this very interesting project is assembled on a double-sided Eurocard size PCB and requires a supply of 5V @ 250mA. The unit completes a full-screen image at 7.2 to 8.5 seconds with a synchronisation signal at 1200Hz. It is jammed with 32 ICs, but is very easily constructed using IC sockets and a few passive components. Just connect the unit to your receiver's audio output and the decoder output to the input of a video monitor. Price £52.45

UHF TV AERIAL PREAMPLIFIER - a design incorporating three filters to eliminate out-of-band interference, this preamplifier exhibits a gain of 20dB at 700MHz with a noise figure of just 3dB by using the latest generation of UHF transistors. The PCB measures 55 x 80mm and the unit requires a 12V DC supply @ 16mA. Price £8.75

1GHz TELEVISION TRANSMITTER - advanced technology in your hands!. A professionally designed miniature module (just a little bigger than a cigarette pack) this unit will give you the opportunity to transmit in the microwave band the professional way! The audio and video inputs are frequency modulated, the audio being pre-emphasised at 50uS and the video according to CCIR 405-1. The VCO oscillates at around 1GHz and a pre-scaler divides the frequency by 64, feeding a synthesiser section, which allows the exact frequency to be selected. RF output is +20dBm (100mW) which can be raised to 1W (!) by changing the output amplifiers. Power requirements are 12V DC @ 150mA (100mW output). Available only as an assembled and aligned module. Price £99.95

## VIDEO:

RGB PATTERN GENERATOR - a really sophisticated project originally designed for the professional market. All the patterns are coded and stored in a set of four EPROMs, which results in an extremely stable display. All the timing signals are derived from two crystal oscillators, at 20 and 2.5MHz. The unit is constructed on a Eurocard double-sided, plated-through PCB, and can be used as a stand-alone unit or with a coder such as described below. Power supply requirements are 5V DC @ 500mA. Price £109.45

MULTI-STANDARD RGB PATTERN GENERATOR - using a recently produced LSI device this unit can generate a video signal on all standard TV systems (SECAM1, SECAM2, PAL-CCIR, NTSC1, NTSC2, at both 625 and 525 lines). Three patterns are produced by this circuit, which measures 100 x 120mm and requires only a 5V DC supply. Price £53.99

PAL ENCODER - based on the Philips TEA1002 device this coder will generate the R-Y and B-Y signals and produce a 16 colour composite video waveform output. Composite sync, burst gate, PAL switch and blanking inputs are required as well as the RGB. The kit is constructed on a single-sided Eurocard PCB and provision is made for mounting an on-board RF modulator is desired. Power supply requirements are 5V DC @ 600mA for the basic unit and 12V if an RF modulator is fitted. Price £25.39

## RADIO KITS:

50MHz CONVERTER FOR 2M OR 10M - are you interested in the 6M band but don't want to buy an expensive 'black box'? This converter could be the answer; the miniature but highly sophisticated unit may be used with either 2M or 10 M radios (please specify when ordering). The use of a Schottky double-balanced mixer and TOKO coils permits alignment without the need for complicated test equipment. PCB size 115 x 60mm. Price £27.50

23cm 2M or 10M CONVERTER - a new approach to microwave circuit design has produced this sophisticated yet easily assembled converter. The output is available either on the 2M or 10M band, depending on the frequency of the crystal used in the oscillator. Frequency coverage is 1296 to 1298MHz, output 28 to 30MHz or 144 to 146MHz and the unit requires 10V DC @ 95mA. Available only as an assembled and aligned module. Price £27.95

2M 20W POWER AMPLIFIER - this project uses a single high-gain power transistor to provide 10W of output power for a drive level of 1.5 to 3W, and is ideal for uprating your hand-held for shack/mobile use. The unit also features a receive preamplifier and an RF or hard switched aerial changeover relay. The input and output are fully matched to 50 ohms and the output is fully protected against high VSWRs. Power supply requirements are 11 to 14V DC @ 2.5A. Price £56.45

2M to 70cm TRANSVERTER - this interesting project will allow you to transmit and receive on the 70cm band using your 2M radio, without the need to purchase an expensive 70cm rig. The circuit is quite straight forward and will give an RF output of at least 10W for a drive level of just 1W, using the latest generation of Mitsubishi UHF power transistors. The PCB measures 180 x 180mm and the unit requires 12 to 14V DC @ 1.5A (transmit). POA

10M TO 6M TRANSVERTER - this unit consists of a single-sided PCB measuring 115 x 110mm on which is mounted a complete receive and transmit converter, producing up to 500mW of output. The receive converter may be constructed on its own, providing you with a very high quality receiver Price £45.95

QRP SSB HF 15W AMPLIFIER - this miniature amplifier will deliver up to 15W output from around 1W of drive, covering the whole HF spectrum from 3.5MHz to 30MHz. The PCB measures 80 x 88mm and the power supply requirements are 12V DC @ 1.5A. Price £29.45

MINIATURE CRYSTAL CONTROLLED 1W 2M TRANSMITTER - this interesting QRP project will help you cover short distances the affordable way. It can be used for base or portable operation. Particular attention has been paid to the spectral purity of the unit, and correctly aligned the harmonics should be better than 55dB down. The input accepts both crystal and dynamic microphones and as the unit utilises phase modulation converted to frequency modulation over-deviation is unlikely. The double-sided PCB measures 50 x 105mm. Price £37.45

DOUBLE CONVERSION VHF FM GENERAL PURPOSE RECEIVER - this receiver is based on the industry workhorse device, the S042P and the new generation FM IF strip type S1469. It can operate from 20 to 200MHz with a sensitivity of 1uV (20dB S/N) either with a free-running local oscillator, an external VFO or as a crystal controlled unit. The unit is very simple to construct and align and provides a low-cost method of receiving signals in the VHF bands. The PCB measures 80 x 55mm. Price £18.95

MICROPHONE COMPRESSOR/PREAMPLIFIER - a miniature circuit which allows microphones to be used in environments with high background noise levels, such as vehicles, etc. The sensitivity and compression rates can be separately adjusted using two preset potentiometers. The maximum amplification is greater than 70dB, the maximum compression is greater than 70dB and the maximum output voltage is 1V RMS. The supply required is 10 to 15V DC @ 15mA. Price £12.95

## TEST AND MEASURING EQUIPMENT:

COMPACT 8-DIGIT 20 TO 1200MHz FREQUENCY COUNTER - this interesting frequency counter product uses the well-known 7216D LSI device plus a very sensitive amplifier/pre-scaler chip. The reference crystal is soldered on top of the metal can of a voltage

regulator chip, thus making a practical and compact 'temperature controlled' reference for clock accuracy. The sensitivity of the counter is 18mV at 20MHz, 3.6mV (!) at 100MHz, 2.9mV at 250MHz, 1.5mV at 500MHz and 11mV at 1GHz. The selectable gate times are 0.1, 1 and 10 seconds. The unit is constructed on a double-sided PCB measuring 75 x 95mm and requires only a 12V DC supply. Price £75.75

UNIVERSAL FREQUENCY COUNTER/TIMER - a high-performance universal counter/timer circuit based on the 7226 counter chip and the 8680 pre-scaler with very good stability based on high-accuracy TQ crystals. Assembly and construction is very easy and the whole construction can be enclosed in a 7 x 30 x 25cm cabinet. Frequency range 0Hz to 550MHz indicated on an 8-digit LED 13mm super-bright display. Gate times of 10mS, 100mS, 1 and 10 seconds are provided, as are separate AC (to 10MHz), DC (to 10MHz) TTL (to 2MHz) and HF inputs. Price £73.75

POCKET LCD FREQUENCY METER - this instrument has a basic range of 10Hz to around 180MHz with the in-built miniature pre-scaler. A unit counter facility is also incorporated, as is a battery condition monitor. On on-board power regulator is provided, so that the unit may be powered from an external DC source. The meter has a large six-digit LCD display, of which five are used for the counter display and the sixth as a flag to indicate the selected range and the battery condition. The PCB measures 130 x 82mm. Price £45.45

1GHz PRE-SCALER/PREAMPLIFIER FOR FREQUENCY COUNTERS - this miniature and affordable project will increase the frequency range of your counter up to 1GHz. The division rate is 1000 (thus 1GHz reads as 1Mhz) and the output is TTL. The PCB measures 75 x 35mm and power requirements are 5V DC @ 75mA. Price £19.45

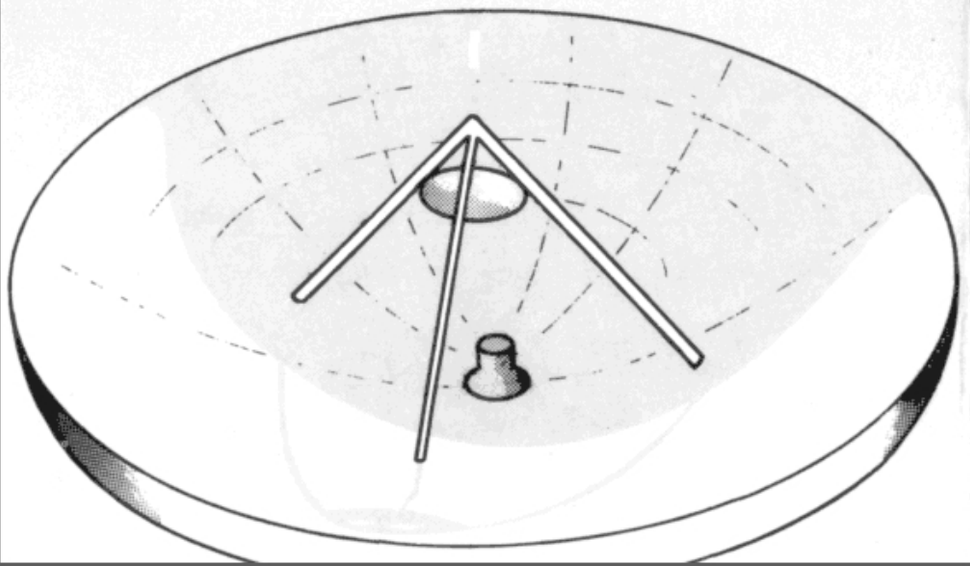
3.5 DIGIT LCD HAND-HELD MULTIMETER - this great project has been designed to provide professional performance at very low cost. The heart of the instrument is the well-known 7106 LSI device. Fifteen measurement ranges are provided and the specifications make it an extremely versatile workmate. Use of the LCD display gives large, easily read digits and a very long battery life. Volts DC & AC to 500V in three ranges, Current DC and AC to 2A in three ranges and Resistance to 2M-ohms. The input impedance is 10M-ohms and the PCB measures 88 x 140mm. Price £45.45

## UTILITY UNITS:

AUTOMATIC CHANGEOVER FOR FAX/TELEPHONE - with this relatively simple unit you will get rid of the problem of asking your callers to wait for a changeover from fax to phone and, more importantly, will automatically switch to the correct mode, fax or phone, when you are away from the office. The PCB measures 130 x 70mm. Price £29.95

# CQ-TV

MAGAZINE

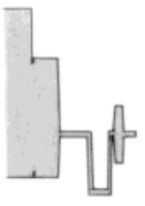


# BATC

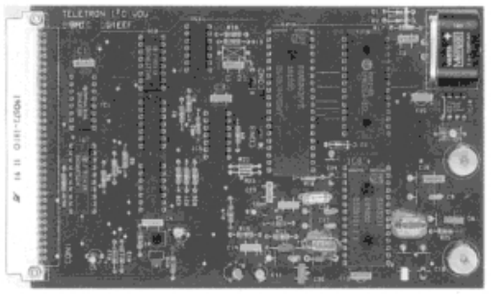
## Over four decades of Television Service

*Interest in the Technical side of Television ?*

*Then CQ-TV is the magazine for you ! It has around a hundred pages in every issue packed full of practical and easy to build circuits for the television enthusiast and constructor.*



KAL 081 560-5481 (9915/3)

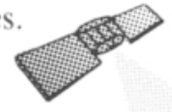


**Printed circuit boards** are available for many of the projects and a full index of past circuits will be sent to you when you join.

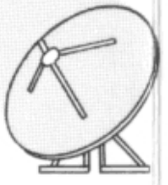
**Video** and studios are covered in detail with constructional projects and how to do-it articles.

**Fast Scan** is the hobby of transmitting and receiving standard television pictures on the amateur radio bands. We organise contests both national and international for you to take part in and we liaise with other organisations on all aspects of your hobby.

**Slow Scan** is the hobby of transmitting and receiving still frame TV pictures again on the amateur radio bands but this time over much greater distances.



**Satellite Television** is the fast growing interest in receiving broadcast television from satellites, we will report on what is happening, where the satellites are, and how to locate, track, and watch these pictures.




**CQ-TV** is a quarterly magazine packed full of the technical side of your hobby. It has circuits for building most of the equipment for yourself. CQ-TV also covers the learning aspect of television with past series on using Oscilloscopes, TTL Logic and understanding and using the Micro Processor. CQ-TV reports on satellites, DX TV, TV on the air and contest news.

There is even a modular computer system called $I^2C$ which is home constructed and by simple menu's allows you to decode teletext and display the contents. Edit and create your own teletext pages, test cards and call sign which can be superimposed on a TV signal. $I^2C$ will also perform tasks of video and audio switching, plus many other features.

**Membership** *is by subscription on the basis of £9 a year and all 2500 members receive CQ-TV by post. Members can order PCB's and other specialist components from "Members Services", use the BATC Library, order books and back issues from "Publications" and advertise in CQ-TV.*

**Help** *and advice on TV related topics. You can contact a member of the BATC Committee from the list published in CQ-TV or you can use our computer Bulletin Board System (300, 1200 or 2400 baud). Here you can exchange electronic mail, and software with other members, you can even "upload" articles for CQ-TV. All at no charge, except for normal telephone charges. Tel. 0767 317521*

**The BATC was founded in 1949 to inform, instruct co-ordinate and represent the activities of television enthusiasts in the UK and worldwide. The BATC is a non profit making organisation run by an elected committee of volunteers. Membership enquiries to "Grenehurst", Pinewood Road. High Wycombe, Bucks. England**

**Notes**

1. You do not need a callsign to join and enjoy the benefit of membership.
2. Write YES in this box if you have been a member before.
3. Our subscription year runs from January to December, so if you join part way through a year you need to pay for a part year and the following year.
   You will receive CQ-TVs according to the money we receive, so if in doubt select the higher amount and we will send back-issues.
4. You can join for £9 at any time and receive all 4 CQ-TVs for the current year. However your next sub. will be due on January 1st. even if you join in December.
5. If you are outside Europe you can have your CQ-TVs sent by AIRMAIL. Write 50% of the "amount selected" in the Airmail box and total them in the "Total Due" box.
6. Important!! if you are posting the application from outside the UK you **Must** use a postage stamp.

# CQ-TV

MAGAZINE

*Application for Membership*

BATC
Supports
Television
Worldwide

BUSINESS REPLY SERVICE
Licence No.HY59

No postage stamp necessary
if posted in Great Britain,
Channel Islands or Northern Ireland

**British Amateur Television Club**
Subscriptions Department
'Grenehurst'
Pinewood Road
HIGH WYCOMBE
Buckinghamshire
ENGLAND
HP12 3BR

MOISTEN

# BATC Membership Application Form

*I Wish to join the BATC and I Apply for Membership*

First Name

Last Name | Callsign *NOTE 1*

Address

Address

Post Town

Country/ or State

Postcode /Zip code

Country

**USE CAPITAL LETTERS**

Date

New member ? Yes/No *NOTE 2*

*Signed*

Application constitutes acceptance of the clubs rules.

*Which month are you joining in ?* *NOTE 3*
*Select from the list below to find the correct amount to pay.*

| | | | |
|---|---|---|---|
| **January** **February** **March** | You will receive all four issues of this years CQ-TV | **£9.00** | Tick |
| **April** **May** **June** **July** | You will receive 3 CQ-TVs this year and 4 next year | **£15.75** | Tick |
| **August** **September** **October** | You will receive 2 CQ-TVs this year and 4 next year | **£13.50** | Tick |
| **November** **December** | You will receive 1 CQ-TV this year and 4 next year | **£11.25** | Tick |

Amount Selected £

*Extra for Airmail* *NOTE 5* £

**Total Due** £

## *PAYMENT METHODS*

*Please Pay By:*

**UK Cheque**

British Postal Order

Eurocheque in Sterling

Bankers Cheque Drawn on a UK Bank in Sterling

By Credit card

*Make your Cheque Payable to "BATC"*

*PLEASE TICK* ✓ Access/ Mastercard ☐ Eurocard ☐ Visa ☐

*Card Expiry date*

**PRINT CLEARLY**

*Card Number*

I authorise you to debit my credit card for the correct amount for my BATC subscription.

Signed

Date

**FOR BATC ONLY** NEEDS: HAS: AMOUNT RX BY

*DETACH ALONG THIS EDGE. MOISTEN, FOLD AND SEAL.*

*IF YOU ARE ENCLOSING A CHEQUE YOU SHOULD REINFORCE THESE EDGES WITH STICKY TAPE*

MOISTEN


**JACK TERRY and BRIAN PARTRIDGE circa 1956**

But Trevor - You said we would only need a small dish for Satellite TV!